

NASA SP-5021 (13)

Index to NASA Tech Briefs 1972



February 1973

(NASA-SP-5021(13)) INDEX TO NASA TECH
BRIEFS, 1972 (NASA) 202 p HC \$3.00

N73-28941

CSCI 05B

Unclas

G1/34 13428

National Aeronautics and Space Administration

This document is available from the National Technical Information Service (NTIS), Springfield, Virginia 22151, for \$3.00. For copies mailed to addresses outside the United States, add \$2.50 per copy for handling and postage.

Introduction

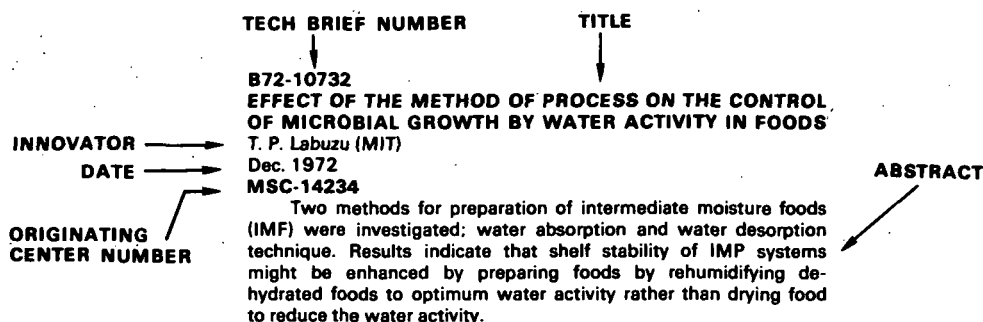
Tech Briefs are short announcements of new technology derived from the research and development activities of the National Aeronautics and Space Administration or the U.S. Atomic Energy Commission. These briefs emphasize information considered likely to be transferrable across industrial, regional, or disciplinary lines and are issued to encourage commercial application.

This *Index to NASA Tech Briefs* contains abstracts and four indexes—subject, personal author, originating Center, and Tech Brief number—for 1972 Tech Briefs.

Abstract Section

The abstract section is divided into nine categories: Electronics/Electrical; Electronic/Electrical Systems; Physical Sciences; Materials/Chemistry; Life Sciences; Mechanics; Machinery, Equipment, and Tools; Fabrication Technology; and Computer Programs. Within each category, abstracts are arranged sequentially by Tech Brief number.

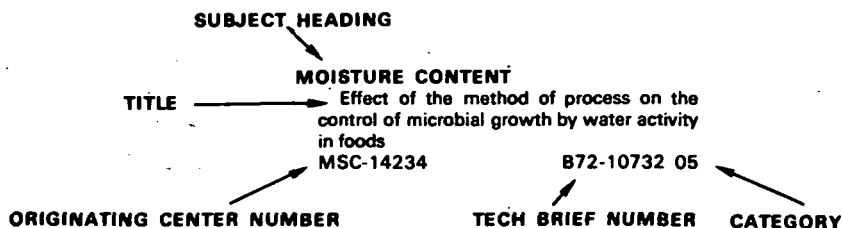
A typical abstract entry has these elements:



The originating Center number in each entry includes an alphabetical prefix that identifies the NASA Center or Atomic Energy Commission office where the Tech Brief originated. A list of prefixes and the corresponding Center names are given on page iii.

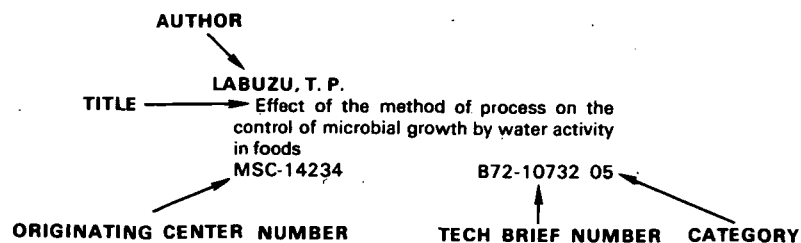
Indexes

Four indexes are provided. The first is a subject index, arranged alphabetically by subject heading. Each entry in the subject index includes a Tech Brief number and a category number to aid the user in locating pertinent entries in the abstract section.



The preliminary edition of the *NASA Thesaurus* (December 1967) (NASA SP-7030) is used as the authority for the indexing vocabulary that appears in the subject index. The *NASA Thesaurus* should be consulted in examining the current indexing vocabulary, including associated cross-reference structure. Only the subject terms that have been selected to describe the documents abstracted in this issue appear in the subject index. Copies of the *NASA Thesaurus* may be obtained from the National Technical Information Service or the U.S. Government Printing Office at \$8.50 for the three-volume set. The first two volumes of this Thesaurus, consisting of the alphabetical listing of subject terms (A-Z), have been superseded by the following single-volume publication: *NASA Thesaurus Alphabetical Update* (September 1971) (NASA SP-7040), available from NTIS for \$6.00. (Volume III of the Preliminary Edition consists of the following ancillary aids to vocabulary selection: hierarchical display of index terms, category term listing, permuted index, and a listing of postable terms only.)

The second index is a personal author index. Entries in this index are arranged alphabetically by author's name. Tech Brief and category numbers are supplied to help the user find the appropriate entries in the abstract section.



The third index relates each originating Center number to the corresponding Tech Brief number and category. Entries in this index are arranged in alphanumeric order by Center number.



The fourth index relates each Tech Brief number to its originating Center number. Entries are arranged in ascending Tech Brief number order.



Originating Center Prefixes

NASA

ARC	Ames Research Center
GSFC	Goddard Space Flight Center
HQ	NASA Headquarters
KSC	Kennedy Space Center
LANGLEY	Langley Research Center
LEWIS	Lewis Research Center
M-FS	Marshall Space Flight Center
MSC	Johnson Space Center (formerly Manned Spacecraft Center)
NPO	NASA Pasadena Office
XAC	Ames Research Center
XGS	Goddard Space Flight Center
XLA	Langley Research Center

Atomic Energy Commission

AEC	Atomic Energy Commission
ARG	Argonne National Laboratory
LRL	Lawrence Radiation Laboratory
NUC	AEC-NASA Space Nuclear Systems Office
SAN	Sandia Laboratories

Availability of NASA Tech Briefs

Subscriptions to Tech Briefs may be purchased from the National Technical Information Service, Springfield, Virginia 22151, (Attention: Code 410.4).

There are nine categories of Tech Briefs. The charge for an annual subscription to all nine categories is \$31 (foreign, \$59). Subscription rates for single categories are:

	Domestic	Foreign
Electronics/Electrical	\$10.75	\$19.75
Electronic/Electrical Systems	9.50	18.75
Physical Sciences	9.50	18.75
Materials/Chemistry	9.50	18.75
Life Sciences	8.25	15.75
Mechanics	8.25	15.75
Machinery, Equipment, and Tools	8.25	15.75
Fabrication Technology	9.50	18.75
Computer Programs	10.75	19.75

A complete set of Tech Briefs issued prior to 1972 may be purchased for \$150. All Tech Briefs issued in 1963 or 1964 may be purchased for \$10; and all Tech Briefs issued in each year since then for \$20 per year.

Requests for individual copies of Tech Briefs, and questions regarding the Tech Brief program, should be directed to:

TECHNOLOGY UTILIZATION OFFICE (Code KT)
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D. C. 20546

This index was prepared by the NASA Scientific and Technical Information Facility, operated for the National Aeronautics and Space Administration by Informatics Tisco, Inc.

TABLE OF CONTENTS

Abstract Section

Category 01	Electronics/Electrical	1
02	Electronic/Electrical Systems	7
03	Physical Sciences	12
04	Materials/Chemistry	22
05	Life Sciences	32
06	Mechanics	38
07	Machinery, Equipment, and Tools	45
08	Fabrication Technology	50
09	Computer Programs	52

Indexes

Subject	I-1
Personal Author	I-109
Originating Center/Tech Brief Number	I-131
Tech Brief/Originating Center Number	I-135



Index to NASA Tech Briefs

February 1973

Abstract Section

01 ELECTRONICS/ELECTRICAL

B72-10007 PEAK ACCELERATION LIMITER

C. P. Chapman
Dec. 1972
NPO-10556

Device is described that limits accelerations by shutting off shaker table power very rapidly in acceleration tests. Absolute value of accelerometer signal is used to trigger electronic switch which terminates test and sounds alarm.

B72-10014 PIEZOELECTRIC TRANSDUCER MOSAIC

R. C. Haborak (TRW Systems Group)
1972

ARC-10509

Crystal substrate is used to form a transducer mosaic by employing single X-cut crystal and transferring desired pattern from stainless steel mask. Result is a less tedious and costly method of producing a mosaic of matched crystals having the same fundamental frequency.

B72-10021 BERYLLIUM THIN FILMS FOR RESISTOR APPLICATIONS

O. Fiet (TRW Systems Group)
1972

ARC-10485

Beryllium thin films have a protective oxidation resistant property at high temperature and high recrystallization temperature. However, the experimental film has very low temperature coefficient of resistance.

B72-10042 PSEUDO-SATURATING POWER CONVERTER

R. G. Radys (Hughes Aircraft Co.) and C. V. Agnew (Hughes Aircraft Co.)
1972

NPO-11368

Relative performance of three basic configurations of electronic conversion units (saturating, pseudo-saturating, nonsaturating) requiring low power levels is compared. Pseudo-saturating mode exhibits best overall performance, nonsaturating a close second, saturating a poor third.

B72-10043 DEEP SPACE NETWORK

F. M. Flanagan, P. S. Goodwin, and N. A. Renzetti
1972 See also NASA-CR-12898

NPO-11562

Background, current status, and sites of Deep Space Network stations are briefly discussed.

B72-10045 ELECTRICAL GROUNDING BRACKET

C. E. Carroll (TRW Systems Group)
1972

ARC-10041

Device serves as common grounding point for shielded wires of multipin electrical connector and permits addition or removal of ground leads without disturbing other grounded wires.

B72-10047 HIGH NOISE IMMUNITY ONE SHOT

G. L. Schaffer
1972

ARC-10137

Multivibrator circuit, which includes constant current source, isolates line noise from timing circuitry and field effect transistor controls circuit's operational modes. Circuit has high immunity to supply line noise.

B72-10054 PULSE EXCITATION OF BOLOMETER BRIDGES

S. J. Rusk (Lockheed Missiles and Space Co.)
1972

ARC-10292

Driving bolometer bridge by appropriately phased excitation pulses increases signal-to-noise ratio of bolometer sensor which operates on a chopped light beam. Method allows higher applied voltage than is possible by conventional ac or dc excitation.

B72-10055 TOPOLOGICAL SOLUTION OF BILATERAL SWITCHING NETWORKS

L. Mazer
1972

ARC-10294

Topological method uses the eye as pattern detector to trace path of transmission on truth table. Pathway selection is continually supervised by logician, allowing him to seek planar iterative solution desirable for fabrication of monolithic circuits. Method applies to parity generators, multiple output functions, full adders, and bit comparators.

B72-10056 COAXIAL INVERTED GEOMETRY EPITAXIAL TRANSISTOR

R. J. Hruby, W. R. Dunn (Lockheed Missiles and Space Co.), and S. B. Cress (Lockheed Missiles and Space Co.)
1972

ARC-10330

Silicon transistor, developed for use in biotelemetry circuits, provides high current gain at low levels of power and voltage. Device operates from biopotential or miniature batteries and is suitable for incorporation into monolithic integrated circuits. Coaxial configuration and small size offer promise for high frequency application.

01 ELECTRONICS/ELECTRICAL

B72-10057

CIRCUIT PERMITS INDEPENDENT ADJUSTMENT OF GAIN AND OFFSET AT CONSTANT INPUT IMPEDANCE

V. B. Holland

1972

ARC-10348

Circuit with single operational amplifier conditions input signals for data acquisition systems by applying offset voltage correction signal to feedback circuit instead of one of the input terminals of operational amplifier.

B72-10059

IMPROVED AUDIO REPRODUCTION SYSTEM

C. S. Chang (Lockheed Missiles and Space Co.)

1972 See also NASA-CR-114287

ARC-10404

Circuitry utilizing electrical feedback of instantaneous speaker coil velocity compensates for loudspeaker resonance, transient peaks and frequency drop-off so that sounds of widely varying frequencies and amplitudes can be reproduced accurately from high fidelity recordings of any variety.

B72-10060

LIGHTWEIGHT, BROAD-BAND SPECTRUM ANALYZER

G. M. Crook (TRW Systems Group)

1972

ARC-10406

Spectrum analyzer, utilizing techniques similar to those used to classify energy levels of nuclear particles, is incorporated into electric field detector. Primary advantage is ability to perform qualitative broad-band frequency analysis over a large dynamic amplitude range with minimum weight and electrical power requirements.

B72-10077

VOLTAGE-TUNABLE PARALLEL-T FILTER FOR REMOTE OPERATION

R. E. Brantner

1972

NPO-11165

Filter is devised by using insulated-gate field-effect transistors for remote control. Transistors are P-channel devices that operate in enhancement mode and are commercially available.

B72-10079

CIRCUIT CONTROLS TURN-ON CURRENT

K. G. Holmes

1972

NPO-11339

Single choke used in primary circuit with diode arrangement, maintaining dc current flow through choke and setting up a unidirectional magnetic field, limits turn-on current of transformer-rectifier power supply. Technique reduces number and weight of components and minimizes effect of initial inrush surge current on source.

B72-10080

WIDE ANGLE SOLAR SENSOR

L. F. Schmidt and W. E. Crawford

1972

NPO-11341

Method for correcting orientation of spacecraft with respect to sun is discussed. System consists of two photocells on either side of sensor. When photocells are evenly illuminated, no output is made from sensor. When photocells are unevenly illuminated, sensor sends signal to gas jets to change orientation.

B72-10092

PRECISION VOLTAGE REGULATOR

P. J. Hand and R. A. Crawford

1972

NPO-11502

Balanced positive and negative voltage output circuit, in which error voltage for control is developed from difference in absolute value of positive and negative voltages referenced to a common point, regulates voltage for use with inertial reference unit.

Fast-acting, temperature-compensated, high-gain operational amplifier circuits maintain common point.

B72-10096

PIEZOELECTRIC ACTUATOR USES SEQUENTIALLY-EXCITED MULTIPLE ELEMENTS: A CONCEPT

E. E. Sabelman

1972

NPO-11527

Utilizing arrays of sequentially-excited piezoelectric elements to provide motion in a nonmagnetic motor provide built-in redundancy and long life required for deployment or actuation of devices on spacecraft. Linear-motion motor devices can also be fabricated.

B72-10100

STABLE PHOTODIODE AMPLIFIERS

H. Fujimoto

1972

NPO-11561

Minimization of common mode effects in differential amplifier arrangement which processes signals from two high impedance photodiodes is achieved by connecting one photodiode in feedback loop of amplifier and using field effect transistors in the input circuit.

B72-10102

SIGNAL TO NOISE MEASUREMENT CIRCUIT

L. F. Deerkoski

May 1972

GSFC-11239

Phase lock reference provides a rapid and accurate method of determining the signal-to-noise ratio at the intermediate frequency stage of a receiver.

B72-10103

LONGITUDINAL FRICTION FORCES IN PIPING DESIGN

C. S. Parker (GE)

May 1972

M-FS-13754

Scheme measures sliding support friction forces and incorporates them into software programs which are used to analyze piping flexibility.

B72-10106

TORNADO DETECTOR AND ALARM

A. R. Moss

May 1972

M-FS-20915

Automatic device which attaches to an active television set sounds an audible alarm when a tornado is within 29 km (18 miles) of device.

B72-10112

FLEXIBLE DESK TOP COMPUTERS USING LARGE SCALE INTEGRATION (L.S.I.) CHIPS

H. Garrett and R. C. Asquith

1972

M-FS-21277

Microprogrammable modular computer utilizing only seven different types of L.S.I. elements lowers manufacturing cost and improves reliability. Chips can be standardized and used to implement variable bit length computers.

B72-10116

TIME-ADJUSTED VARIABLE RESISTOR

R. C. Heyser

Dec. 1972

NPO-11306

Timing mechanism was developed effecting extremely precisioned highly resistant fixed resistor. Switches shunt all or portion of resistor; effective resistance is varied over time interval by adjusting switch closure rate.

B72-10124

FREQUENCY SWITCH KEYED OSCILLATOR

L. Katchis (Randonics, Inc.)

1972

ARC-10412

Oscillator changes resonant frequency of the LC tank circuit by shunting one of a pair of parallel capacitors. Technique reduces amount of hardware required to interrogate and control remote systems.

B72-10134

HIGH-TEMPERATURE, LONG-LIFE THYRATRON

E. A. Baum (GE) and N. D. Jones (GE)

May 1972 See also B69-10376; NASA-CR-1684

LEWIS-11327

Thallium and xenon filled thyratron was developed that operates at tube envelope temperatures up to 750 C. This tube performs at peak voltage ratings of 2000 V forward and reverse and at an average current rating of 15 A for up to 11,000 hours.

B72-10138

COMPENSATION OF VOLTAGE DROPS IN SOLID-STATE SWITCHES USED WITH THERMOELECTRIC GENERATORS

K. Shimada

Dec. 1972

NPO-11388

Seebeck effect solid state switch was developed eliminating thermoelectric generator switch voltage drops. Semiconductor switches were fabricated from materials with large Seebeck coefficients, arranged such that Seebeck potential is generated with such polarity that current flow is aided.

B72-10145

A RELIABLE LIQUID HELIUM DETECTOR

W. M. Krawczonek and B. Stephenson

May 1972

LEWIS-11487

Detector and indicator system, utilizing commercial perforated germanium cryogenic thermometer as level sensor containing adjustable level discriminator with indicators, operates reliably over pressure range from 50 to 900 mm Hg without electronic adjustments.

B72-10149

GATE PROTECTIVE DEVICE FOR INSULATED GATE FIELD-EFFECT TRANSISTORS

R. A. Sunshine (RCA)

May 1972

M-FS-21626

Device, which protects insulated gate field-effect transistors, improves reliability through utilization of layers of conductive material on top of each alternating semiconductor material region. Separation of layers is necessary to prevent shorting out junctions between alternating regions.

B72-10155

CRYSTAL-CONTROLLED MULTIVIBRATOR

R. C. Schober

Dec. 1972

NPO-11627

Method is described for designing crystal oscillator which has frequency and symmetry stability suitable for system-clock-generators used in spacecraft data systems. Simple multivibrator is used in which timing capacitor is replaced by a crystal.

B72-10156

SELECTING DIGITAL FILTERS

R. E. DeMandel (Lockheed Missiles and Space Co.) and S. J. Krivo (Lockheed Missiles and Space Co.)

May 1972

M-FS-20933

Technique reduces task of filter design by using cut off frequency, termination frequency and weight number to determine filter effect on frequency domain of digital filter input data function.

B72-10159

ZIPPER-TYPE ELECTRICAL CONNECTORS

C. E. Levoe

Dec. 1972

NPO-11639

Electrical connector is described of zipper-like configuration, in which sequentially interlocking tines serve as electrical contacts or insulators.

B72-10165

DIFFERENTIAL INPUT PREAMPLIFIER

P. W. Callaway (Santa Barbara Res. Center)

1972

ARC-10489

Preamplifier chops and amplifies very low level output of thermopile infrared detectors that will be used to measure thermal energy flux of Jupiter and its departure from a blackbody spectrum. Output signal has negligible phase shift. AC signal is RC-coupled to input stage of other amplifiers.

B72-10176

LONG-TERM DRIFT OF THERMOCOUPLES AT 1600 K

G. E. Glawe

May 1972 See also NASA-TN-D-7027

LEWIS-11471

Thermal electromotive-force changes for 30 commercially available noble- and refractory-metal thermocouples have been determined in air, argon, and vacuum, at 1600 K for exposures up to 10,000 hours. Investigation techniques can serve as guidelines for future studies of other thermocouple systems.

B72-10181

IMPROVED HIGH VOLTAGE INSULATOR FOR USE IN VACUUM

D. C. Byers, P. M. Margosian, and G. E. Mealy

Dec. 1972

LEWIS-11401

High voltage insulator for electron bombardment ion thruster has electric field directed through dielectric material and electrons emitted by field emission are constrained in negative junction region. Surface flashover and unstable operation are eliminated, and maximum voltage is limited only by dielectric strength of material, aluminum oxide in this case.

B72-10184

SPEED ENHANCEMENT OF COMPLEMENTARY MOS DEVICES

M. Devlin (GE)

1972

ARC-10387

Speed required for Sisyphus experiment on Pioneer probe was attained at supply voltage well within component limitations by combining supply voltage higher than nominal with low reactance interconnections. Speed was found to be far in excess of typical parameters suggested by manufacturers of MOS devices.

B72-10185

LOW PHASE-SHIFT AMPLIFIER

G. F. Lutes and R. C. Coffin

Dec. 1972

NPO-11663

Single-stage MOSFET amplifier is described which is identical to standard neutralized amplifier except that neutralization provided by broadband transformer is applied to AGC gate instead of signal gate. Neutralization of drain-to-control gate capacity minimizes the phase change induced by variation in AGC.

B72-10186

PERFORMANCE OF SILICON SOLAR CELL ASSEMBLIES

R. G. Ross, Jr., R. K. Yasui, W. Jaworski, L.-C. Wen, and E. L. Cleland

Dec. 1972

NPO-11847

Solar cell assembly current-voltage characteristics, thermal-optical properties, and power performance were determined. Solar cell cover glass thermal radiation, optical properties, confidence limits, and temperature intensity effects on maximum power were discussed.

01 ELECTRONICS/ELECTRICAL

B72-10218 TEMPERATURE COMPENSATION OF LIGHT-EMITTING DIODES

G. J. Deboo and C. N. Burrous
1972

ARC-10467

Circuit which includes a thermistor-resistor combination to compensate for temperature fluctuations by supplying input voltage to light-emitting diode, maintains constant light output. Similar circuits can be used for temperature-induced variations in photodiode applications.

B72-10226 IMPROVED FEEDBACK SHIFT REGISTER

M. Perlman
May 1972

NPO-10351

Design of feedback shift register with three tap feedback decoding scheme is described. Application for obtaining sequence synchronization patterns is examined. Operation of the circuitry is described and drawings of the systems are included.

B72-10236 ELECTRONIC SWITCHING CIRCUIT USES COMPLEMENTARY NON-LINEAR COMPONENTS

O. S. Zucker
Dec. 1972

AEC-10060

Inherent switching properties of saturable inductors and storage diodes are combined to perform large variety of electronic functions, such as pulse shaping, gating, and multiplexing. Passive elements replace active switching devices in generation of complex waveforms.

B72-10245 BROADBAND RF-DISTRIBUTION AMPLIFIER

G. F. Lutes, Jr.
Sep. 1972

NPO-11401

Radio frequency amplifier to distribute reference frequencies within communications systems and provide automatic gain control with low phase distortion is described. Use of photocell in electronic circuit to produce desired conditions is explained. Operation of entire amplifier circuit is analyzed.

B72-10255 NARROWBAND, CRYSTAL-CONTROLLED BIOMEDICAL TELEMETRY SYSTEM

R. M. Westbrook and T. B. Fryer
Dec. 1972

ARC-10708

Telemetry system utilizing miniature, single-channel, crystal-controlled transmitter is described suitable for biomedical applications. Receiver used in conjunction with transmitter is narrowband superheterodyne FM receiver with crystal control in both conversion stages.

B72-10268 DRIVER CIRCUIT FOR INDUCTIVE LOADS

W. A. Cooke (Lockheed Missiles and Space Co.)
1972

ARC-10073

Circuit, based on use of power transistors which do not display second breakdown under valve loading, drives inductive loads. Peak voltages, power dissipations, heat sink requirements, and thermal stability considerations can be obtained by theoretical analysis.

B72-10271 MINIATURE INTERMITTENT CONTACT SWITCH

A. Sword (Stanford Univ.)
1972

ARC-10450

Shock resistant switch is capable of being activated by any slight physical pressure on flexible conductor which causes it to come into contact with rigid conductor. Switch is used primarily

as a sensor on remote control (tele-operator) and prosthetic devices.

B72-10275 AN INGESTIBLE TEMPERATURE-TRANSMITTER

J. M. Pope, T. B. Fryer, and H. Sandler
Jul. 1972

ARC-10583

Pill-sized transmitter measures deep body temperature in studies of circadian rhythm and indicates general health. Ingestible device is a compromise between accuracy, circuit complexity, size and transmission range.

B72-10304 CONTROL OF OSCILLATIONS IN A DISCHARGE CIRCUIT

D. Y. Cheng
Sep. 1972

ARC-10556

Development of electric discharge circuit damping element which increases in resistance with current and time is described. Damping element is resistor made of tungsten wire which has large resistance-temperature coefficient. Specifications of tungsten resistor and incorporation into circuit are explained.

B72-10308 A SIMPLE TACHOMETER CIRCUIT

J. Dimeff
Sep. 1972

ARC-10603

Electric circuit to measure frequency of repetitive sinusoidal or rectangular wave is presented. Components of electric circuit and method of operation are explained. Application of circuit as tachometer for automobile is discussed.

B72-10315 SIMPLE NON-DESTRUCTIVE TESTS FOR ELECTROEXPLOSIVE DEVICES

L. A. Rosenthal (Rutgers, Univ.) and V. J. Menichelli
Jun. 1972

NPO-11563

Electrothermal behavior of bridgewire-explosive interface is defined by pulsing electroexplosive device with a safe level of current and examining the resistance variation of bridgewire. Bridgewire provides signal which describes average wire temperature and heat sinking to the explosive and enclosure.

B72-10316 PROPERTIES OF IONIZATION BREAKDOWN OF AIR AT MICROWAVE FREQUENCIES AND OPTIMIZATION OF COMPONENT DIMENSIONS FOR MAXIMUM MICROWAVE POWER

L. L. Rainwater (Sperry Rand Corp.)
Jul. 1972

M-FS-21924

Method provides optimization of dimensions in vented RF components for predictable performance at critical pressures, eliminates leakage from hermetically sealed types, and utilizes coaxial RF multicouplers.

B72-10347 OVERLAP DIFFUSION FOR INCREASING PHOTOTRANSISTOR DYNAMIC RANGE

D. H. McCann (Westinghouse Elec. Corp.)
Jul. 1972

M-FS-20407

Construction of improved phototransistors to provide increased base-collector capacitance is described. Silicon or germanium semiconductor wafers are used as examples. Operation of transistors and electrical properties are discussed and illustrations of the devices are included.

B72-10363 IMPROVED UNIVERSAL ELECTRICAL CONNECTOR

B. W. Kennedy
Jul. 1972

M-FS-14741

Universal electrical connector for use with various types of electric cable, inserts, and pin styles is described. Connector may be used over variety of environmental conditions. Details of construction are discussed. Illustrations of connector are included.

B72-10369

A MANUALLY SET MAGNETIC WIRE COUNTER

Innovator not given (Sandia Labs.) Dec. 1972

AEC-10039

Magnetic storage wire counter design principles are given. Magnetic storage wire was coupled with two phase propagational driver in manual set counter shift register. Time delay between magnetic counter domain insertion and corresponding output pulse provides counting functions.

B72-10370

TWO-STAGE MAGNETOMETER MEASURES WEAK MAGNETIC FIELDS

R. W. Buntenbach

Dec. 1972

AEC-10068

Sensitive magnetometer capable of measuring field strengths of 10 nanogauss is described. High permeability core is aligned parallel to magnetic field in first stage. In second stage, ferromagnetic toroid saturates rapidly. Adjustment of turns and area ratios of each stage provides wide range of sensitivities.

B72-10376

A SONIC TRANSDUCER TO DETECT FLUID LEAKS

I. Cimerman (Dynamatec Corp.) and J. Janus (Dynamatec Corp.)

Jul. 1972 See also NASA-CR-124618

KSC-10704

Ultrasonic detector utilizes set of contact transducers and bandpass filters to detect and analyze sonic energy produced by flow or leakage. Detector covers wide frequency range and is operable at cryogenic temperatures and in vacuum.

B72-10393

GUIDELINES FOR FABRICATION OF HYBRID MICROCIRCUITS

W. D. McKee, Jr. (N. Am. Rockwell Corp.), J. E. Varga (N. Am. Rockwell Corp.), J. V. Brandewie (N. Am. Rockwell Corp.), and A. P. Poole, Jr. (N. Am. Rockwell Corp.)

Jul. 1972

M-FS-21964

Document is summary of approaches that may be taken in designing hybrid microcircuits similar to those for aerospace application.

B72-10452

MINIATURE INTERMITTENT CONTACT SWITCH

A. Sword (Stanford Univ.)

Aug. 1972

ARC-10450

Design of electric switch for providing intermittent contact is presented. Switch consists of flexible conductor surrounding, but separated from, fixed conductor. Flexing of outside conductor to contact fixed conductor completes circuit. Advantage is small size of switch compared to standard switches.

B72-10453

CURRENT SWITCH HAS BUILT-IN TIME DELAY: A CONCEPT

C. D. Jesch (N. Am. Rockwell Corp.)

Aug. 1972

MSC-17324

Switch concept provides simple means of achieving electro-mechanical time delay function. Unit consists of reed-type circuit breaker enclosed by copper tubing with electromagnetic coil wound around tubing and entire assembly mounted on insulating platform. Characteristics are affected only by geometry of system so device is expected to be very stable.

B72-10455

NEW METER PROBES PROVIDE PROTECTION FROM HIGH

CURRENT POWER SOURCES AT POTENTIALS UP TO 600 VOLTS

H. Long and J. Getsug

Aug. 1972

LANGLEY-10804

Meter probes incorporating integral fuse holder which contains limitation fuse of 600 V, 5A, with interruption rating of 50,000 KVA, provide required protection and minimize danger incurred by defective or improperly operated meter.

B72-10462

INTERFEROMETER USING RF SWITCHING MATRIX

R. N. VanVleet (GE)

Aug. 1972

GSFC-11051

Radio frequency switching technique for single receiver and data processing channel to be used for phase movement measurement is discussed. Components of interferometer radio frequency unit, X-band receiver, and interferometer data processing unit are illustrated. Elimination of major measurement error source is described.

B72-10463

AMPLIFIER FOR SIGNAL FROM THIN FILM TRANSDUCER

K. A. Jensen

Aug. 1972

LEWIS-11494

Electronic circuitry is devised to raise low level signal from platinum film type transducer to sufficient amplitude to trigger oscilloscope or time interval counter. Circuit can be used wherever it is necessary to raise level of low amplitude, low impedance positive polarity pulse source to a 5 or 6 volt level.

B72-10474

SPECIFICATION GUIDELINES FOR HYBRID MICROCIRCUITS

S. V. Caruso

Aug. 1972

M-FS-22090

Guidelines establishing manufacturing and control procedures for hybrid microcircuits used in aerospace programs may have possible commercial and industrial applications. Guidelines encompass parts, materials, and process controls, as well as assembly, packaging methods, screening, and inspection procedures for procurement of custom packaged, high reliability microcircuits.

B72-10477

LOW FREQUENCY SINUSOIDAL PRESSURE GENERATOR

J. S. Curreri

Aug. 1972 See also NASA-TN-D-6166

LEWIS-11465

Low frequency pressure generator is built to provide sinusoidal driving function in frequency range from 0.05 to 50 Hz for frequency response testing of pressure transducers used in liquid-filled systems. Generator consists of piston-in-cylinder, scotch-yoke mechanism machined into piston, and adjustable eccentric.

B72-10479

IMPROVED OPERATION OF RECHARGEABLE OXYGEN ELECTRODES

P. A. Malachuk (Tyco Corporate Technol. Center) and G. L. Holleck (Tyco Corporate Technol. Center)

Aug. 1972 See also NASA-CR-72999

LEWIS-11619

Procedure for enhancing operating life and performance of oxygen electrodes in rechargeable metal-oxygen batteries and hydrogen-oxygen fuel cells is discussed. Accumulation of refractory anodic oxide layer and inhibiting effects on oxygen reduction are described. Improvements in service life of batteries by following procedure are explained.

B72-10480

HIGH INTENSITY SOLAR CELL RADIOMETER

H. W. Brandhorst and E. W. Spisz

01 ELECTRONICS/ELECTRICAL

Aug. 1972

LEWIS-11549

Device can be employed under high intensity illumination conditions such as would occur in a close-solar-approach space mission or in monitoring high intensity lamps. Radiometer consists of silicon solar cells with thin semi-transparent coatings of aluminum deposited on the front surfaces to permit transmission of small percentage of light and reflect the remainder.

B72-10492

IMPROVED ELECTRICAL SPOT TERMINALS

C. D. Baker

Aug. 1972

NPO-10034

Improved electrical spot terminal has been developed which can be rigidly attached to terminal mounting board. Mounting board is bonded to epoxy board which in turn is bonded to printed circuit board with high temperature adhesive. Conductive lead is coupled between electrical terminal and circuit trace on circuit board. Shape is usually clover-leaf.

B72-10505

NOVEL DIELECTRIC REDUCES CORONA BREAKDOWN IN ac CAPACITORS

J. L. Loehner (McDonnell-Douglas Corp.)

Aug. 1972

M-FS-21486

Dielectric system was developed which consists of two layers of 25-gage paper separated by one layer of 50-gage polypropylene to reduce corona breakdown in ac capacitors. System can be used in any alternating current application where constant voltage does not exceed 400 V rms. With a little research it could probably be increased to 700 to 800 V rms.

B72-10506

WATERTIGHT LOW-COST ELECTRICAL CONNECTOR

J. E. Dudenhoefer and M. N. Miraldi

Dec. 1972

LEWIS-11552

Fabrication is described of waterproof electrical connector assembly for use with Teflon jacketed cables and constructed so that assembly will remain sealed under extreme environmental conditions. Conditions are specified as: pressure from vacuum to atmospheric; temperature from 280 K to 450 K; exposure to saturated steam; and steam suddenly introduced into vacuum.

B72-10518

A VOLTAGE-TUNABLE THREE-TERMINAL GUNN DEVICE

R. J. Schwartz (Purdue Univ.) and J. J. Nahas (Purdue Univ.)

Aug. 1972

HQ-10783

Newly developed Gunn oscillator is three-terminal device which consists of piece of gallium arsenide with source, drain, and gate contacts. Voltage tunable three-terminal device does not require bulky resonant cavity and allows oscillation frequency to be rapidly tuned with simple circuitry.

B72-10523

MECHANICALLY AND THERMALLY STABLE MASER CAVITY RESONATOR

R. F. C. Vessot (Smithsonian Astrophys. Obs.), T. E. Hoffman (Smithsonian Astrophys. Obs.), and M. W. Levine (Smithsonian Astrophys. Obs.)

Aug. 1972

HQ-10790

New type cavity resonator is designed for hydrogen maser. Resonator consists of three pieces of glass-ceramic material having extremely low thermal coefficient of expansion and provides very stable mechanical tuning.

B72-10527

Al/C12 MOLTEN SALT BATTERY

J. Giner (Tyco Labs., Inc.)

Aug. 1972

HQ-10696

Molten salt battery has been developed with theoretical energy

density of 5.2 j/kg (650 W-h/lb). Battery, which operates at 150 C, can be used in primary mode or as rechargeable battery. Battery has aluminum anode and chlorine cathode. Electrolyte is mixture of $AlCl_3$, $NaCl$, and some alkali metal halide such as KCl .

B72-10530

CATHODE FOR USE WITH LOW DENSITY GASES

W. H. Bennett (N. C. State Univ.)

Aug. 1972

HQ-10687

Method for preventing deterioration of mixed oxide cathodes in low density gas tubes caused by ion bombardment is discussed. Construction of cathode is described and illustration is furnished. Electron emission through space charge to neutralize ion-filled regions is basic process.

B72-10555

ELECTRONIC INTEGRATOR FOR GYRO RATE OUTPUT VOLTAGES

R. A. Crawford, P. J. Hand, and H. H. Horiuchi

Sep. 1972

NPO-11499

Circuit which integrates spacecraft gyro output voltages to provide analog position signals has been developed. Accurate integration is provided by all solid state system which uses no choppers and takes advantage of commercially available flight qualified components.

B72-10561

PHOTOMULTIPLIER BLANKING CIRCUIT

J. O. McClenahan

Sep. 1972

ARC-10593

Circuit for protecting photomultiplier equipment from current surges which occur when exposed to brilliant illumination is discussed. Components of circuit and details of operation are provided. Circuit diagram to show action of blanking pulse on zener diode is included.

B72-10578

AN ABSENTEE MONITORING DEVICE

A. L. Meadows (Boeing Co.) and D. C. Birch (Boeing Co.)

Sep. 1972

KSC-10668

Development of audio alarm system to provide remote monitoring of warning devices is discussed. Device uses photodiode connected to self-powered audio alarm unit. Photograph of equipment is included.

B72-10643

REDUNDANCY APPROACHES IN BUBBLE DOMAIN MEMORIES

G. S. Almasi (IBM) and S. E. Schuster (IBM)

Oct. 1972

M-FS-21915

Fabrication of integrated circuit chips to compensate for faulty memory elements is discussed. Procedure for testing chips to determine extent of redundancy and faults is described. Mathematical model to define operation is presented. Schematic circuit diagram of test equipment is provided.

B72-10646

DUAL FIELD ALIGNMENT DISPLAY AND CONTROL FOR ELECTRON MICROPATTERN GENERATOR

P. R. Malmberg (Westinghouse) and T. W. O'Keeffe (Westinghouse)

Oct. 1972

M-FS-22118

Application of electron beam lithography to replace photolithography process in fabrication of integrated circuits is discussed. Procedure for using electron beam lithography equipment is described. Diagram of electron micropattern generator is provided.

B72-10673

HIGH TEMPERATURE GALLIUM PHOSPHIDE RECTIFIERS

M. G. Craford (Monsanto Co.) and D. L. Keune (Monsanto Co.)

Dec. 1972 see also NASA-CR-2098

LEWIS-11804

Development of high reverse breakdown voltage and low forward voltage drop stability in high power Schottky GaP rectifier for high temperature application is reported.

B72-10691

DIODE-QUAD BRIDGE FOR REACTIVE TRANSDUCERS AND FM DISCRIMINATORS

D. R. Harrison and J. Dimeff

Oct. 1972

ARC-10364

Diode-quad bridge circuit was developed for use with pressure-sensitive capacitive transducers, liquid-level measuring devices, proximity deflection sensors, and inductive displacement sensors. It may also be used as FM discriminator and as universal impedance bridge.

B72-10696

DEVELOPMENT OF CHIP PASSIVATED MONOLITHIC COMPLEMENTARY MISFET CIRCUITS WITH BEAM LEADS

L. J. Ragonese (GE), M. J. Kim (GE), B. L. Corrie (GE), J. W. Brouillette (GE), and R. E. Warr (GE)

Dec. 1972 See also NASA-CR-123742

M-FS-22264

Fabrication method is described for alumina passivated silicon MISFET arrays. Technique involves total passivation beam-lead approach and provides completely sealed chip with double level interconnect capability. Refractory metal alloy is used to form interconnect system and obtain metal contacts that withstand temperatures of 873 K for short periods of time.

B72-10697

OPTIMAL READ/WRITE MEMORY SYSTEM COMPONENTS

A. Kozma (Radiation, Inc.), A. Vander Lugt (Radiation Inc.), and D. Klinger (Radiation Inc.)

Dec. 1972

M-FS-22044

Two holographic data storage and display systems, voltage gradient ionization system, and linear strain manipulation system are discussed in terms of creating fast, high bit density, storage device. Components described include: novel mounting fixture for photoplastic arrays; corona discharge device; and block data composer.

B72-10705

WAVEGUIDE SWITCH PROTECTOR

R. B. Kolbly

Oct. 1972

NPO-11592

Device for detecting excessive operation of electric motors used to drive waveguide switches is described. Purpose of device is to prevent burnout of electric motor in event of waveguide stoppage at some point other than extreme limits of travel. Operation of equipment, components used to sense motor performance, and schematic diagram are included.

B72-10719

IRRADIATION OF MOS-FET DEVICES TO PROVIDE DESIRED LOGIC FUNCTIONS

V. Danchenko and D. H. Schaefer

Dec. 1972

GSFC-11061

Gamma, X-ray, electron, or other radiation is used to shift threshold potentials of MOS devices on logic circuits. Before irradiation MOS gates to be shifted are biased positive and other gates are grounded to substrate. Threshold lasts 10 years. Thermal annealing brings circuit back to original configuration.

B72-10729

FREQUENCY-TO-AMPLITUDE CONVERTER: A CONCEPT

C. H. Stewart

Dec. 1972

MSC-12395

Circuit allows direct frequency to amplitude conversion without special counters and discriminators and provides for individual or simultaneous emphasis of high or low frequencies. Circuit is simple, small, light weight, and versatile in its frequency range and region of conversion.

B72-10731

INSULATED-GATE FIELD-EFFECT TRANSISTOR STRAIN

SENSOR

C. Gross

Dec. 1972

LANGLEY-11012

Strain sensors that can be switched on and off were fabricated from p-channel IGFET on thin filament n-type silicon crystals with silicon dioxide layer sputtered over transistor for passivation. Applications include integration with microelectronic circuits for multiplexing.

B72-10735

A PANEL SPACE FOR RFI SHIELDING GASKET: A CONCEPT

W. T. Goins (N. Am. Rockwell Corp.)

Dec. 1972

MSC-17827

Method for spacing and shielding console chassis from panel is described. Small Teflon buttons are force-fitted into standard holes in console.

B72-10737

WIDEBAND WATTMETER FOR INSTANT MEASUREMENT OF REAL POWER

L. G. Landes (Barnes and Reinecke, Inc.) and Y. Y. Liu (Barnes and Reinecke, Inc.)

Dec. 1972 See also NASA-CR-72752

LEWIS-11698

Portable, solid state wattmeter with wideband (dc to 1 MHz) linear multiplier which provides true four quadrant operation permitting instantaneous indication of real power as oscilloscope display is described.

B72-10741

DESIGN OF MICROSTRIP COMPONENTS BY COMPUTER

T. C. Cisco (CAED Corp.)

Dec. 1972

LANGLEY-11210

Development of computer programs for component analysis and design aids used in production of microstrip components is discussed. System includes designs for couplers, filters, circulators, transformers, power splitters, diode switches, and attenuators.

B72-10755

GATE PROTECTIVE DEVICE FOR SOS ARRAY

J. E. Meyer, Jr. (David Sarnoff Res. Center) and J. H. Scott (David Sarnoff Res. Center)

Dec. 1972

HQ-10745

Protective gate device consisting of alternating heavily doped n(+) and p(+) diffusions eliminates breakdown voltages in silicon oxide on sapphire arrays caused by electrostatic discharge from person or equipment. Diffusions are easily produced during normal double epitaxial processing. Devices with nine layers had 27-volt breakdown.

02 ELECTRONIC/ELECTRICAL SYSTEMS

B72-10018

A HYBRID ELECTROMECHANICAL SOLID STATE SWITCH FOR ac POWER CONTROL

Innovator not given (Teledyne Kinet.) 1972 See also B67-10165

MSC-14005

Bidirectional thyristor coupled to a series of actuator driven electromechanical contacts generates hybrid electromechanical solid state switch for ac power control. Device is useful in power control applications where zero crossover switching is required.

B72-10030

THIRD ORDER DIGITAL-TO-ANALOG CONVERTER

W. P. Dotson

1972

MSC-12458

System, consisting of sample and hold digital-to-analog

02 ELECTRONIC/ELECTRICAL SYSTEMS

converter, clock circuit, sample delay circuit, initial condition circuit and interpolator circuit, improves accuracy of reconstructed analog signal without increasing sample rates.

B72-10050

ELECTRODES FOR SEALED SECONDARY BATTERIES

D. B. Boies (IIT Res. Inst.) and F. T. Child (IIT Res. Inst.)

1972

ARC-10238

Self-supporting membrane electrode structures, in which active ingredients and graphite are incorporated in a polymeric matrix, improve performance of electrodes in miniature, sealed, alkaline storage batteries.

B72-10051

IMPROVED DEVICE MEASURES PERFORMANCE OF BATTERIES UNDER LOAD

J. D. Powell (TRW, Inc.)

1972

ARC-10252

Kordesck-Marko interrupter bridge circuit includes capability of varying frequency of interruption in steps from 60 Hz to 2000 Hz range extension, and addition of operating modes to allow instrument to serve as steady dc constant-current source or load, or source of interrupted constant current.

B72-10052

ADAPTIVE POSITION CONTROL LOOP

W. L. Keltz (GE)

1972 See also NASA-CR-73304

ARC-10255

Design of attitude control system for a sounding rocket is established by using a control loop which incorporates a lead network to convert position output into a feedback signal that is approximately proportional to position, plus a constant times rate.

B72-10074

OXYGEN PRESSURE CONTROL FOR ELECTROLYSIS CELLS

J. D. Powell (TRW, Inc.)

1972

ARC-10250

Duty cycle of switched, constant current circuit controlled by pressure sensor provides oxygen at a constant pressure from a cell which electrolyzes water, eliminating possibility of cell damage by excessive oxygen demand.

B72-10076

QUICK RELEASE ACOUSTIC SENSOR HOLDING FIXTURE

W. McMahon (N. Am. Rockwell Corp.) and E. S. Scherba (N. Am. Rockwell Corp.)

1972

MSC-17457

Quick-release spring holder secures acoustic sensor to test material surface eliminating adhesive bonding to test material and achieving acoustic emission evaluation from tensile tests. Reusability of sensors reduces test cost.

B72-10086

INTRODUCTION OF LITHIUM INTO THE FRONT SURFACE OF SOLAR CELLS

P. A. Iles (Globe-Union, Inc.)

1972

NPO-11404

Time-temperature cycle provides sufficient lithium in the active regions of solar cells. Gradient of lithium is less subject to alteration by P-N junction field.

B72-10088

TECHNIQUE MINIMIZES THE EFFECTS OF DROPOUTS ON TELEMETRY RECORDS

T. O. Anderson and W. J. Hurd

1972

NPO-11421

Recorder deficiencies are minimized by using two-channel system to prepare two tapes, each having noise, wow and flutter,

and dropout characteristics of channel on which it was made. Processing tapes by computer and combining signals from two channels produce single tape free of dropouts caused by recording process.

B72-10089

ACCURATE MEASUREMENT OF TELEMETRY PERFORMANCE

R. W. Burt, N. C. Ham, C. T. Sterlzried, and M. S. Reid

1972

NPO-11457

Performance of high rate telemetry stations used in the Deep Space Network is verified. Measurement techniques are discussed.

B72-10091

CONTROL OF ACCELERATION IN SINE/RANDOM VIBRATION TESTS

R. C. Woodbury

1972

NPO-11482

Sampling output levels of accelerometers using largest output or any combination of outputs provide control of shaker for spacecraft vibration qualification tests.

B72-10094

INERTIAL REFERENCE UNIT

R. A. Crawford

1972

NPO-11518

Unit provides rate damping, linear velocity changes and angular position information to attitude control system during turns and motor burns.

B72-10098

SOLDERING IRON TEMPERATURE INDICATOR

C. D. Baker and G. A. Wiker

1972

NPO-11545

Thermocouple implanted in metal mass simulates heat transfer characteristics of connection which is to be soldered. Light signals indicate whether temperature is right, too high, or too low.

B72-10099

ARC PROTECTION SYSTEM FOR HIGH-POWER RF AMPLIFIERS

R. C. Chernoff

1972

NPO-11560

Protective system prevents damage or destruction of high-power RF amplifiers by arcs which may occur in output transmission line. Advantages of system are listed.

B72-10101

STANDARD ENVIRONMENTAL TESTING PRACTICES

R. Daniel, E. Gregory, J. Stoker, F. VanBiene, and R. C. Woodbury

1972

NPO-11567

Manual on procedural requirements for performing certain environmental tests on space flight equipment provides information for test equipment designers, quality control and production engineers. Contents of manual are summarized.

B72-10108

LOW NOISE ELECTROMAGNETIC FLOWMETER

V. J. Cushing (Eng.-Phys. Co.)

May 1972

M-FS-21291

Parasitic hum is removed by using an isophase magnetic field created within flowmeter and an enclosure which prevents leakage of flux field. Method prevents contamination of flow conduit and eliminates zero point drift.

B72-10109

TECHNIQUES FOR IMPROVING RELIABILITY OF COMPUTERS

W. C. Cater (IBM), C. E. McCarthy (IBM), D. C. Jessep (IBM),

A. B. Wadia (IBM), F. G. Milligan (IBM), and W. G. Bouricius (IBM)
May 1972
M-FS-21326

Modular design techniques improve methods of error detection, diagnosis, and recovery. Theoretical computer (MARCS (Modular Architecture for Reliable Computer Systems)) study deals with postulated and modeled technology indigenous to 1975-1980. Study developments are discussed.

B72-10119
HIGH VOLTAGE PROTECTION NETWORK
J. M. Cambra
1972

ARC-10197
Circuit protects technical personnel and test equipment from hazardous currents conducted through safety barriers and into data acquisition equipment. Network isolates energy source, restricts arcing to remote area, and dissipates harmlessly residual energy transient.

B72-10131
HEART SIMULATOR
E. Palmer
May 1972
M-FS-21609

Unijunction oscillator controlled by potentiometer to generate a spike that may be converted by transformer action to the simulated heart beat is used as a calibrator for heart monitoring equipment.

B72-10139
AIRCRAFT COMMUNICATION VIA TELEFACSIMILE SYSTEM
R. L. Brown, Sr.
1972
M-FS-20839

Based on reading rate of between 500-1000 words/minute, transmitting typewritten matter only, system uses lowest possible bandwidth to avoid overcrowding, while furnishing data as fast as it can be absorbed by pilot. Bandwidth requirements are less than 150 kHz, a considerable saving over conventional television.

B72-10141
ERRORS IN HYBRID COMPUTERS
C. O. Alford (Ga. Inst. of Tech.) and J. L. Hammond (Ga. Inst. of Tech.)
1972
M-FS-21289

Method is described for reduction of error components in numerical integration, sampling with zero hold order, and execution time delay.

B72-10164
INTERCONNECTIONS FOR FLUIDIC CIRCUITS
C. Mangion (TRW Systems Group)
1972
ARC-10481

Circuit elements are grouped on functional basis in rectangular two-dimensional planar arrays or modules. Another interconnection method brings all connections out to module edge. For smaller fluidic circuits, manifold and interconnections are fabricated as single blocks. Advantages of methods are given.

B72-10167
ILLUMINATION CONTROL SYSTEM
C. Beckman (Gen. Tech. Serv., Inc.)
1972
ARC-10527

Experiment, testing effects of constant light intensity on Arabidopsis growth, utilizes wide-spectrum fluorescent lamps monitored by photocell which controls the power supplied to lamp.

B72-10177
FLEXIBLE, LOW-COST SILICON SOLAR CELL ARRAYS

A. F. Forestieri, J. D. Broder, and D. T. Bernatowicz
May 1972 See also NASA-TM-X-52875
LEWIS-11069

Silicon solar cell arrays are pressure-bonded to flexible backing and protected by fluorinated ethylene propylene cover in one mechanized operation. Arrays packaged by this method are flexible, lightweight, insulated, breakage resistant and less expensive.

B72-10191
OVERLAY BOARD FOR CONTROL CONSOLES
C. T. Jackson
May 1972
ARC-10007

Board that fits over the control panel decreases errors and time loss. Device has cutouts for controls and indicators, bears all appropriate labeling information, can be removed with the changing computer assignments, and guards against accidental changes in control settings.

B72-10254
SOLID STATE TELEVISION CAMERA HAS NO IMAGING TUBE
C. T. Huggins
Jun. 1972
M-FS-21553

Camera with characteristics of vidicon camera and greater resolution than home TV receiver uses mosaic of phototransistors. Because of low power and small size, camera has many applications. Mosaics can be used as cathode ray tubes and analog-to-digital converters.

B72-10272
LIGHTNING FLASH DETECTION SYSTEM
W. J. Borucki and D. Billings
1972
ARC-10562

Array of photodetectors and associated circuitry continuously monitors entire horizon to measure distance and direction of lightning flashes.

B72-10285
VIDICON STORAGE TUBE ELECTRICAL INPUT/OUTPUT
P. Lipoma (Lockheed Electron. Co.)
Jun. 1972
MSC-14053

Electrical data storage tube is assembled from standard vidicon tube using conventional amplification and control circuits. Vidicon storage tube is simple, inexpensive and has an erase and preparation time of less than 5 microseconds.

B72-10286
DESIGN CURVE FOR LIQUID HELIUM STORAGE VESSELS
J. A. DiCarlo
Jun. 1972
LEWIS-11498

Development of equipment for storage of liquid helium is discussed. Derivation of design curve and working equations for estimating effects of either perfect or imperfect heat transfer in storage device are described. Mathematical models of heat transfer conditions are provided.

B72-10295
THE DESIGN OF AN AUTOMATED VERIFICATION OF REDUNDANT SYSTEMS
F. A. Ford (Radiation, Inc.), T. W. Hasslinger (Radiation, Inc.), and F. J. Moreno (Radiation, Inc.)
Jun. 1972 See also NASA-CR-125311
KSC-10702

Handbook describes design processes, presents design considerations and techniques, gives tutorial material on implementation and methodology, shows design aids, illustrates use of design aids and application samples, and identifies general practices to be adhered to or avoided.

B72-10296
NONDESTRUCTIVE TESTING OF MICROTAB WELDS

02 ELECTRONIC/ELECTRICAL SYSTEMS

L. Feinstein and R. J. Hruby
Sep. 1972
ARC-10176

Introduction of sinusoidal signal across welded structure to determine reliability of integrated circuit connections is discussed. In-phase frequencies and quadrature frequency functions are used to evaluate weld reliability. Schematic diagram of test equipment and components is provided.

B72-10357
ZONE RADIOMETER MEASUREMENTS ON A MODEL ROCKET EXHAUST PLUME
Innovator not given (Cornell Aeron. Lab., Inc.) Jul. 1972
M-FS-21693

Radiometer for analytical prediction of rocket plume-to-booster thermal radiation and convective heating is described. Applications for engine combustion analysis, incineration, and pollution control by high temperature processing are discussed. Illustrations of equipment are included.

B72-10361
A STUDY OF THE POWER SPECTRAL DENSITY OF AN FM SIGNAL
H. L. Deffebach (Auburn Univ.)
Jul. 1972
M-FS-21070

Mathematical expressions describe an FM signal modulated by a composite video wave. Three general spectrum equations for FM signals are obtained by using three types of video information.

B72-10372
AUTOMATIC LIGHTNING LOCATION SYSTEM
T. Holdsworth and D. N. March
Dec. 1972
AEC-10077

Hyperbolic triangulation method was used for locating lightning storm path and position from VHF lightning charge emissions. Possible applications in electric power companies, forest fire lookout centers, airports, and pipeline companies are indicated.

B72-10383
SURVEY OF AIRCRAFT ELECTRICAL POWER SYSTEMS
C. H. Lee (AiRes. Mfg. Co.) and J. J. Brandner (AiRes. Mfg. Co.)
Jul. 1972 See also NASA-CR-110693
LEWIS-11678

Areas investigated include: (1) load analysis; (2) power distribution, conversion techniques and generation; (3) design criteria and performance capabilities of hydraulic and pneumatic systems; (4) system control and protection methods; (5) component and heat transfer systems cooling; and (6) electrical system reliability.

B72-10390
A CLOSED LOOP CRYOGENIC ENVIRONMENT PRESSURE REGULATING SYSTEM
J. C. Huguley (Brown and Root/Northrop) and L. A. Goudie (Brown and Root/Northrop)
Jul. 1972
MSC-13880

Nonlinear closed loop control system to regulate the pressure in a cryogenic environment is described. System employs four position contactor with two control bands to react to the signals. Diagrams of element transfer function and required equipment are included.

B72-10392
TWO-AXIS LEVELING DETECTOR SYSTEM
L. Weiner (Bendix Corp.)
Jul. 1972
M-FS-21344

Electro-mechanical device for measuring tilt angles in order to establish level base without optical reference is described. Angular displacement is detected by movement of bubble in conducting fluid containing electrode network. Electrical signal

causes compensation for small movements in horizontal and vertical planes.

B72-10409
A SIMPLE DEAD-RECKONING NAVIGATIONAL SYSTEM
B. F. Walls, W. C. Mastin, and P. H. Broussard, Jr.
Jul. 1972
M-FS-21165

Simple navigation system is designed for vehicles operating in remote locations where it is not feasible to transport extensive equipment. System consists of four main components: directional gyrocompass to establish inertial direction; odometer to measure distance; signal processor to combine measured distance and direction; and sun compass to determine initial direction.

B72-10411
LASER BEAM DEFLECTION CONTROL: A CONCEPT
C. L. Garvie (Lockheed Electron. Co.)
Jul. 1972
MSC-13814

Improved control of laser beam deflection angles may result from new conceptual device. Reflectively coated magnetized particles are suspended in liquid-filled cell surrounded by two pairs of crossed electromagnetic coils and are selectively aligned by controlling magnetic fields. Ultrasonic energy source keeps particles suspended.

B72-10417
ROLL FUNCTION IN A FLIGHT SIMULATOR
A. E. Brain (Stanford Res. Inst.)
Aug. 1972
ARC-10557

Method introduces roll into the flying-spot scanner by modifying the scanning waveforms.

B72-10442
VERY HIGH SPEED DIRECT-READOUT, CONTROL AND RECORDING SYSTEM
J. W. Turner
Jul. 1972
M-FS-20658

Characteristics of electronic system for high speed readout, control, and recording of data are discussed. Operation of system is described to show rate of data processing and accuracy obtainable. Primary advantage of system is providing direct recording of parameter value several times per second.

B72-10448
A BRUSHLESS dc SPIN MOTOR FOR MOMENTUM EXCHANGE ALTITUDE CONTROL
D. Stern (GE) and J. W. Rosenlieb (GE)
Jul. 1972
M-FS-14952

Brushless dc spin motor is designed to use Hall effect probes as means of revolving rotor position and controlling motor winding currents. This results in 3 to 1 reduction in watt-hours required for wheel acceleration, a 2 to 1 reduction in power to run wheel, and a 10 to 1 reduction in the electronics size and weight.

B72-10467
AIRLOCK CAUTION AND WARNING SYSTEM
W. J. Mayfield (McDonnell-Douglas Corp.), L. Z. Cork (McDonnell-Douglas Corp.), R. G. Malchow (McDonnell-Douglas Corp.), and G. L. Hornback (McDonnell-Douglas Corp.)
Aug. 1972
M-FS-21576

Caution and warning system, used to monitor performance and warn of hazards or out-of-limit conditions on space vehicles, may have application to aircraft and railway transit systems. System consists of caution and warning subsystem and emergency subsystem.

B72-10468
NEUTRON RADIOGRAPHIC VIEWING SYSTEM
W. Leysath (Zenith Radio Corp.) and R. L. Brown

Aug. 1972
M-FS-22024

Neutron radiographic viewing system consisting of camera head and control processor is developed for use in nondestructive testing applications. Camera head consists of neutron-sensitive image intensifier system, power supply, and SEC vidicon camera head. Both systems, with their optics, are housed on test mount.

B72-10471
UNSUPPORTED THIN FILM BEAM SPLITTER

R. C. Bastien (Perkin Elmer Corp.) and R. J. Scheuerman (Perkin Elmer Corp.)

Aug. 1972
GSFC-10525

Multilayer beam splitter system yielding nearly equal broad-band infrared reflectance and transmittance in the 5 to 50 micron spectral region has been developed which will significantly reduce size and cost of light path compensating devices in infrared spectral instruments.

B72-10481
ENHANCED LAMB DIP FOR ABSOLUTE LASER FREQUENCY STABILIZATION

A. E. Siegman (Stanford Univ.), R. L. Byer (Stanford Univ.), and S. C. Wang (Stanford Univ.)

Aug. 1972
HQ-10695

Enhanced Lamb dip width is 5 MHz and total depth is 10 percent of peak power. Present configuration is useful as frequency standard in near infrared. Technique extends to other lasers, for which low pressure narrow linewidth gain tubes can be constructed.

B72-10501
INDEXING FILM WITH A FLUIDIC SENSOR

A. N. Maciel, Jr. (Singer/Gen. Precision, Inc.)

Aug. 1972
MSC-14117

Fluidic sensor is used to measure passage of film without mechanical contact with counting device. Same sensor system may be used for different sizes of film. System has two fluidic sensors and operates on principle of electrically recording interruptions in air stream.

B72-10507
PULSE-WIDTH-MODULATED DEVICE FOR PRECISION TEMPERATURE CONTROL

R. C. Heyser
Dec. 1972

NPO-11407

Temperature controller is described which reduces difference between temperature oscillations about control point. Standard temperature-sensitive resistor element is utilized which is highly stable and reproducible. Temperature sensing circuitry is conventional dc bridge with power supplied by battery or highly regulated supply source.

B72-10508
RADIO DIRECTION FINDER

L. M. Hershey
Dec. 1972

NPO-11573

Three-antenna interferometric system is described for homing on very high frequency transmitters. Antenna signals are sequentially sampled with single receiver and receiver output pulses are held for comparison of signals from outermost antennas with those of center antenna. System can be installed as redundant navigation system in case of failure of VOR receivers.

B72-10510
UNIVERSAL dc SIGNAL CONDITIONER

P. A. Bradanini (N. Am. Rockwell Corp.)
Aug. 1972

MSC-17526

Signal conditioner was designed which can condition dc signals over range of + or - volts. It is lighter, has lower initial

and maintenance costs, and higher reliability than conventional discrete circuit designs. System incorporates linear integrated circuits in conjunction with hybrid, thin film circuit technology to achieve high degree of circuit miniaturization.

B72-10535
MAGNETIC CIRCUITRY MUTUAL COUPLING PROBE

P. L. Anthony (N. Am. Rockwell Corp.)

Sep. 1972
M-FS-21664

Development of magnetic probe for nondestructive testing of multilayer printed circuit boards to determine existence of opens or shorts is reported. Components of probe are described and procedures for operation are discussed. Two illustrations are provided to show magnetic circuits and principles of operation.

B72-10541
POTENTIOMETER, CONSTANT TENSION AND LUBRICATION DEVICE

H. J. Smith (Boeing Co.)

Dec. 1972
KSC-10723

Wiper assembly is described for feedback potentiometers which provides self cleaning, self lubrication, and tension within controlled limits. Each end of the assembly contains loose fitting leather pad thoroughly soaked in wiper lubricating fluid. Cleaning and lubrication of potentiometer resulting from use of lubrication soaked leather accomplishes noise free operation.

B72-10545
A COMPACT BATTERY POWERED DIGITAL THERMOMETER

G. Zivley (SCI Electron., Inc.)

Sep. 1972
MSC-14084

Development of thermometer to provide quick and accurate temperature readings using thermal resistance probe as temperature-to-resistance transducer is discussed. Details of construction and operations are described. Illustration of circuit and components is provided.

B72-10548
THE THIN FILM MICROWAVE IRIS

R. L. Ramey (Va. Univ.), H. S. Landes (Va. Univ.), and E. A. Manus (Va. Univ.)

Sep. 1972 See also NASA-CR-1364
LANGLEY-10511

Development of waveguide iris for microwave coupling applications using thin film techniques is discussed. Production process and installation of iris are described. Iris improves power transmission properties of waveguide window.

B72-10564
NEW PULSING TECHNIQUE MAY IMPROVE RADAR RANGING SYSTEMS

M. V. Gowdey

Sep. 1972
ARC-10600

Mode of operation for radar ranging system based on ringing frequencies is described. Methods for measuring range and range rate are discussed. Mathematical model is included to describe ringing frequency. Application to acoustic sounding devices is proposed.

B72-10573
AN IMPROVED LEARNING DECODER

G. D. Doland (Lockheed Electron. Co., Inc.)

Oct. 1972
MSC-14070

Learning decoder was developed which operates at system data rate without limiting data rate. Decoder is much simpler than those in existence, operates near Shannon's channel capacity, and automatically recovers operation after loss of signal.

B72-10591
A SIMPLIFIED, COMPACT STATIC SHIFT REGISTER

02 ELECTRONIC/ELECTRICAL SYSTEMS

R. L. Pryor (RCA) and A. M. Smith (RCA)
Sep. 1972
HQ-10723

Shift register was developed which uses only one D type flip-flop and improves packaging density by approximately 25% over the usual arrangement. Circuit is compromise between full master-slave arrangement and dynamic shift register, with limitation only of length of time that clock can be held high during new data entry.

B72-10609
OSCILLATING HOT-WIRE ANEMOMETER
J. M. Conley
Dec. 1972
NPO-11634

Performance analysis was made of oscillating hot-wire anemometer electrical output in gas stream. Advantages include no calibration and measurement of fluid direction as well as fluid speed.

B72-10639
A RANGE EXPANDING SIGNAL CONDITIONER
W. A. Russell (McDonnell-Douglas Corp.), R. L. Grant (McDonnell-Douglas Corp.), and M. L. Scheer (McDonnell-Douglas Corp.)
Oct. 1972
M-FS-21720

Telemetry system modifications to improve signal resolution are described. Process uses zero suppression technique which consists of subtracting known voltage from input and amplifying remainder. Schematic diagram of circuit is provided and details of operation are presented.

B72-10647
A VISUAL-DISPLAY AND STORAGE DEVICE
D. R. Bosomworth (RCA) and W. H. Moles (RCA)
Oct. 1972
GSFC-10901

Memory and display device uses cathodochromic material to store visual information and fast phosphor to recall information for display and electronic processing. Cathodochromic material changes color when bombarded with electrons, and is restored to its original color when exposed to light of appropriate wavelength.

B72-10664
FAST RESPONSE DENSITOMETER FOR MEASURING LIQUID DENSITY
Innovator not given (Ind. Nucleonics Corp.) Oct. 1972
M-FS-14478

Densitometer was developed which produces linear voltage proportional to changes in density of flowing liquid hydrogen. Unit has fast response time and good system stability, statistical variation, and thermal equilibrium. System accuracy is 2 percent of total density span. Basic design may be altered to include measurement of other flowing materials.

B72-10668
TWO-SPEED DEFLECTION SYSTEM FOR ELECTRON MICROPATTERN GENERATOR
P. R. Malmberg (Westinghouse)
Oct. 1972
M-FS-22117

Development of dual speed deflection system for electron beam micropattern generator system is discussed. Factors affecting application of electron beam lithography are analyzed. Procedure for using two speed deflection system is described.

B72-10680
AN IMPROVED DATA TRANSFER AND STORAGE TECHNIQUE FOR HYBRID COMPUTATION
A. M. Hansing (Lockheed Missiles and Space Co.)
Oct. 1972
M-FS-22043

Improved technique was developed for transferring and storing data at faster than real time speeds on hybrid computer. Predominant advantage is combined use of electronic relays,

track and store units, and analog-to-digital and digital-to-analog conversion units of hybrid computer.

B72-10682
LOW DISTORTION AUTOMATIC PHASE CONTROL CIRCUIT
G. Hauge (Martin Marietta Corp.) and C. W. Pederson (Martin Marietta Corp.)
Oct. 1972
M-FS-21671

Circuit for generation and demodulation of quadrature double side band signals in frequency division multiplexing system is described. Circuit is designed to produce low distortion automatic phase control. Illustration of circuit and components is included.

B72-10694
PEAK-POWER-POINT MONITOR FOR SOLAR PANEL
A. I. Schloss
Dec. 1972
NPO-11708

Attempt was made to determine solar cell panel peak power capability without disrupting power flow from panel. Separate solar cell strings were switched from panel circuits; and increasingly larger loads were added rapidly until peak power points were transversed. String wattage output was recorded and all stored string measurements summed together indicate peak power point in panel.

B72-10724
ANALYSIS OF CIRCUITS INCLUDING MAGNETIC CORES (MTRAC)
G. R. Hanzon, D. Nitzan, and J. R. Herndon
Dec. 1972
NPO-11494

Development of automated circuit analysis computer program to provide transient analysis of circuits with magnetic cores is discussed. Allowance is made for complications caused by nonlinearity of switching core model and magnetic coupling among loop currents. Computer program is conducted on Univac 1108 computer using FORTRAN IV.

B72-10751
ACOUSTICAL ANALYSIS SYSTEM
R. B. Tatge (GE) and P. F. Scott (GE)
Dec. 1972
GSFC-11087

Integrated system is described which replaces several instruments normally used to analyze acoustical data in failure detection of mechanical or fluid systems. Analysis system extracts and measures repetitive waveforms superimposed on noisy background and compares amplitude with internally stored waveforms. Equipment used in system may be interfaced with general purpose digital computer.

B72-10752
AUTOMATIC METHOD OF MEASURING SILICON-CONTROLLED-RECTIFIER HOLDING CURRENT
E. A. Maslowski
Dec. 1972 - See also NASA-TM-X-2463
LEWIS-11898

Development of automated silicon controlled rectifier circuit for measuring minimum anode current required to maintain rectifiers in conducting state is discussed. Components of circuit are described and principles of operation are explained. Illustration of circuit is provided.

03 PHYSICAL SCIENCES

B72-10001
IMPROVED LABORATORY GRADIOMETER CAN BE A FIELD SURVEY INSTRUMENT

L. G. D. Thompson (Gen. Oceanology, Inc.), M. H. Houston (Gen. Oceanology, Inc.), D. A. Rankin (Gen. Oceanology, Inc.), and E. M. Yavner (Gen. Oceanology, Inc.)

1972

MSC-13980

Improvements made to quartz gradiometer minimize or eliminate disturbing effects from known error sources and permit sensitivity of ± 1 times 10^{-9} to the minus 9th power/sec sq or better and measuring accuracy of ± 5 times 10^{-9} to the minus 9th power/sec sq.

B72-10003

URBAN AIR POLLUTION DISPERSION MODEL

J. J. Robert

1972

AEC-10004

Three-dimensional integrated puff model simulates smoke plume dispersion processes and estimates pollutant concentration during periods of low wind speed. Applications for model are given.

B72-10004

EFFECT OF THERMAL DISCHARGES ON THE MASS ENERGY BALANCE OF LAKE MICHIGAN

J. G. Asbury

1972

AEC-10013

Effects of electric utility generating stations and steel mills on physical quality of Lake Michigan are considered. Study is based on extension of heat exchange model developed by Edinger and Geyer for small lakes and cooling ponds.

B72-10008

PROPELLANT-POWERED ACTUATOR FOR GAS GENERATORS

M. J. Makowski (TRW Systems Group)

1972

ARC-10484

Hydrazine operated monopropellant generators are used for spacecraft rocket engines and propellant pressurization systems. Measured work output of monopropellant actuators compares favorably with output of squib-type actuators.

B72-10016

REMOTE SENSING X-RAY SPECTROMETER

I. Adler (NASA, Goddard Space Flight Center), J. Trombka (NASA, Goddard Space Flight Center), H. Gursky (Am. Sci. and Eng., Inc.), and P. Gorenstein (Am. Sci. and Eng., Inc.)

1972

MSC-13978

Spectrometer measures chemical composition of lunar rocks by remote sensing from orbit and senses lunar X-rays produced by interaction of solar X-rays and elements on the lunar surface. Instrument features high sensitivity, data handling system that accumulates and prepares data for telemetry, and automatic calibration.

B72-10020

SOLAR EXPERIMENT ALIGNMENT SYSTEM

D. L. Fain (Exotech, Inc.)

1972

ARC-10471

Sensor system determines absolute alignment of optical axis of experiment package relative to solar vector and provides control information to permit pointing experiment anywhere on solar disc to absolute accuracy of the order of two arc seconds in center and five arc seconds on limb.

B72-10026

RISING-PLATE RHEOMETER

R. H. Globus (Aerojet Liquid Rocket Co.) and E. M. VanderWall (Aerojet Liquid Rocket Co.)

1972

ARC-10524

Technique eliminates hazards of handling propellants and permits determination of structure index of gel by remote control.

Rheometer weighs cone of propellant gel which remains on a disc that has been slowly pulled out of the gel.

B72-10033

ANALOG TABLE LOOK-UP DEVICE IDENTIFIES UNKNOWN TERRAIN

R. H. Dye (Bendix Corp.)

1972

MSC-13816

Table provides a probability map defining unknown terrain in terms of known terrain inputs. Device consists of analog transformation network and flying spot scanner. Information is useful to manufacturers and users of remote sensing equipment and applies to automated quality control.

B72-10034

A LIQUID RADIATION DETECTOR WITH HIGH SPATIAL RESOLUTION

L. Alvarez (Calif. Univ.)

1972

MSC-13965

Detector, using point anode, minimizes problem of oblique tracks by permitting construction of very thin counter. Detector is useful in cosmic ray and high energy physics research and X-ray and neutron diffraction technology.

B72-10039

HYDRAULIC MODELING OF HEAT DISPERSION IN LARGE LAKES

E. Silberman and H. Stefan

1972

AEC-10003

Case studies of hydraulic models are described for four major generating plants, including information and maps of thermal distribution. Information is of interest to agencies involved in thermal pollution control.

B72-10048

PULSED HIGH-POWER ARC HEATER WITH IMPROVED CATHODE AND TRIGGERING MECHANISM

R. Dethlefsen (Gen. Dyn./Convair) and J. Tinkham (Gen. Dyn./Convair)

1972 See also NASA-CR-1246

ARC-10173

System employs pulsed, constricted arc heater capable of multi-MW power, permitting quasi-stationary flow conditions during latter half of pulse of about 5 msec. System description is given.

B72-10053

INCREASING THE RESPONSE OF PIN PHOTODIODES TO THE ULTRAVIOLET

C. N. Burrous and E. E. Whiting

1972

ARC-10274

Solid state device uses sapphire windows and avoids coatings which absorb ultraviolet radiation and ultimately alter detector geometry. Ultimate solution for ultraviolet response is geometry with maximum peripheral area and horizontal field structure to draw out photon induced current carriers.

B72-10082

VELOCITY ACCELERATOR FOR PARTICLES

A. H. Wilson

1972

NPO-11349

Sheet explosive and metal tube, fitted to the inner periphery of a cam-shaped chamber, accelerate particles to velocities nearing 20 km/sec to evaluate efficacy of spacecraft meteoroid shields.

B72-10083

NEMATIC LIQUID CRYSTALS FOR OPTICAL SHUTTERS: A CONCEPT

R. E. Imus

1972

NPO-11367

03 PHYSICAL SCIENCES

Nonmechanical shutter utilizes nematic crystals to attenuate illumination, thus protecting light-sensitive devices such as vidicon or image orthicon tubes and phototubes. Opacity of liquid crystals is controlled by photosensor.

B72-10085 OXYGEN-LAYER STRUCTURE IMPROVES LITHIUM-DOPED SILICON SOLAR CELLS

P. A. Iles (Globe-Union, Inc.)
1972

NPO-11403

Technique fabricates hybrid structure utilizing low oxygen silicon as bulk cell material and shallow overlay of silicon with high oxygen concentration.

B72-10087 GAS LEAK-DETECTION SYSTEM

F. G. Roselli-Lorenzini
1972

NPO-11405

Data monitoring of gas leakage in satellites and spacecraft is facilitated by adding gaseous radioisotopes to cold compressed gas and mounting a detector in the thrust nozzle.

B72-10107 MANGANESE BISMUTH THIN FILM FOR LARGE CAPACITY DIGITAL MEMORIES

D. Chen (Honeywell, Inc.), R. L. Aagard (Honeywell, Inc.), F. M. Schmit (Honeywell, Inc.), and T. S. Liu (Honeywell, Inc.)
1972

M-FS-21246

Material and system research defines accurate memory characteristics in regard to write, read, erase and data operations of manganese bismuth materials.

B72-10113 HEXAPOLE MAGNET FIELD ANALYSIS

R. F. Lacey (Hewlett-Packard Co.)
1972

GSFC-10995

Method rotates magnet about a wire loop of rectangular shape placed inside the pole tips and measures induced loop voltage with a wave analyzer. Quantitative field characteristics are determined from voltage induced at various harmonics of the rotation frequency.

B72-10123 MASS SEPARATOR FOR LOW VELOCITY IONS

H. J. King (Hughes Aircraft Co.)
1972 See also NASA-CR-73443

ARC-10375

Separator provides broad beam of protons free of other charged species to simulate the solar wind in experiments designed to determine effect on materials.

B72-10127 LOW TEMPERATURE CATALYTIC IGNITION OF HYDROGEN AND OXYGEN

H. H. Voge (Shell Develop. Co.), T. J. Jennings (Shell Develop. Co.), and W. E. Armstrong (Shell Develop. Co.)
1972

ARC-10492

Catalyst composed of 32 percent iridium metal supported on granular alumina is most active and most stable of platinum metal catalysts. Catalyst consistently induces reactions at temperatures as low as 78 K.

B72-10128 OPTICAL SHUTTER FOR USE IN SHOCK TUBES

J. O. McClenahan
1972

ARC-10516

Thin metal shutter that is forced into angled optical slit isolates spectrograph from high speed shock tube both optically and mechanically so neither radiation nor particulate material enters spectrograph.

B72-10130 HIGH SOLAR INTENSITY RADIOMETER

J. R. Jack and E. W. Spisz
May 1972 See also NASA-TM-X-2412
LEWIS-11533

Silicon solar cells are used to measure visible radiant energy and radiation intensities to 20 solar constants. Future investigations are planned for up to 100 solar constants. Radiometer is small, rugged, accurate and inexpensive.

B72-10132 GLASS TECHNOLOGY INVOLVED IN THE MANUFACTURE OF MAGNETOMETER COMPONENTS

G. Bergen
1972

GSFC-11283

Glass technology has developed quicker and less costly techniques in sealing and vacuum processing which result in improved lamps and bulbs, thus producing a less costly and more reliable instrument package.

B72-10140 GRAVITATIONAL GRADIOMETER MEASURES MASS CHANGES

C. C. Bell (Hughes Res. Labs.)
1972

M-FS-20814

Differential angular accelerometer, utilizing complex geometric configurations and spring-coupled rotating masses, demonstrates feasibility of measuring mass distributions of celestial bodies by detecting spatial gradients of their fields from orbiting vehicles. Applications include mineralogical surveying, geodetic engineering, and solar system investigation.

B72-10143 ATMOSPHERIC DENSITY VARIATIONS RELATED TO INTERNAL GRAVITY WAVES

E. B. Miller (Northrop Corp.)
1972

M-FS-21637

Report describes method for estimating gravity-wave density variation from wind speed profile between 60 and 100 km. Single profile is inadequate for valid determination of mean or background values and ensemble averaging over several related profiles is recommended.

B72-10146 LOW TEMPERATURE SCALE FOR A 1 TO 20 DEGREE KELVIN REGION

T. C. Cetas and C. A. Swenson
1972

AEC-10007

New temperature scale, accurate to better than plus or minus 0.001 Kelvin over low temperature region, is based on National Bureau of Standards 1955 platinum resistance thermometer scale and utilizes precise susceptibility measurements on two paramagnetic salts.

B72-10147 CONICAL ELECTROMAGNETIC RADIATION FLUX CONCENTRATOR

E. R. Miller
May 1972

M-FS-21613

Concentrator provides method of concentrating a beam of electromagnetic radiation into a smaller beam, presenting a higher flux density. Smaller beam may be made larger by sending radiation through the device in the reverse direction.

B72-10148 DEVICE FOR MEASURING ELECTRIC FIELDS

S. H. Levine (Northrop Corp. Labs.) and S. R. Harrison (Northrop Corp. Labs.)

1972 See also NASA-CR-73177

ARC-10164

Measurement of low-intensity electric fields in space and in

presence of weak magnetic fields is accomplished by utilizing a device which permits determination of the extent a beam of cesium ions is deflected by an electric field.

B72-10151

ADVANCES IN INDUCTION-HEATED PLASMA TORCH TECHNOLOGY

J. W. Poole (Humphreys Corp.) and C. E. Vogel (Humphreys Corp.)

May 1972 See also B69-10185; NASA-CR-1764; NASA-CR-1804

LEWIS-11354

Continuing research has resulted in significant advances in induction-heated plasma torch technology which extend and enhance its potential for broad range of uses in chemical processing, materials development and testing, and development of large illumination sources. Summaries of these advances are briefly described.

B72-10152

ADVANCED INFRARED PHOTOMULTIPLIER

H. Sonnenberg (Sylvania Electron. Systems-West) and J. D. Taynal (Sylvania Electron. Systems-West)

1972

M-FS-20941

Photocathode for the 8500 angstrom through 9000 angstrom range, improving efficiency by an order of magnitude, is achieved with a gallium arsenide cesium oxide photocathode. Protection of the GaAs surface from contamination during bake-out is another important function.

B72-10154

METHOD OF DETERMINING THERMAL CONDUCTIVITY IN MULTI-LAYER INSULATION SYSTEMS

K. G. Scroggins (Brown Eng. Co.)

May 1972

M-FS-20213

Repeatable nondestructive method prepares multilayer cryo-insulation material for thermal conductivity measurements. Data acquired are volume of boil-off gas, barometric pressure, gas temperature, chamber pressure, and differential pressure between extremities.

B72-10160

PARTICLE DETECTION BY A LIGHT-SCATTERING TECHNIQUE

S. Kormanyos (Bendix Corp.) and J. Mastroeni (Bendix Corp.)

1972

ARC-10384

Instrument measures concentration of small particles in aqueous medium in terms of amount of light scattered and degree to which light transmission is attenuated. Sensitivity to small particles is optimized because both scattered and transmitted illumination levels are detected by photodiodes.

B72-10166

CELL FOR ELECTROLYSIS OF WATER VAPOR

V. A. Celino (Hamilton Standard) and G. Roebelen (Hamilton Standard)

1972

ARC-10521

Electrolytic cells regenerate oxygen from the water vapor in the air of closed-loop life-support system and remove water vapor from air circulated through them. Water is converted into oxygen and hydrogen; the oxygen is returned to the air, the hydrogen is vented or used elsewhere.

B72-10169

FEEDBACK CONTROL OF VARIABLE CONDUCTANCE HEAT PIPES

W. B. Bienert (Dynatherm Corp.)

1972 See also NASA-CR-73475

ARC-10460

Feedback system monitors source temperature and makes necessary changes of area available for heat rejection by adjusting

storage volume of noncondensable gas and position of vapor/gas interface.

B72-10170

VIBRATING RIBBON BOLOMETER: A CONCEPT

J. Dimeff

1972

XAC-10768

Incident electromagnetic radiation pulses maintain bolometer's sensitive element in state of resonant oscillation and correlate amplitude of oscillation with incident radiation power. Bolometer can be employed with other devices for detecting motion of ribbon.

B72-10171

ANNULAR OBJECTIVE APERTURES IMPROVE RESOLUTION OF ELECTRON MICROSCOPES

K. Heinemann and H. R. Poppe

1972

ARC-10448

Hollow-cone illumination techniques, using an annular objective aperture located behind back focal plane of objective lens, increase image contrast and minimize chromatic aberrations.

B72-10180

CRYOGENIC GEL FLOW VISCOMETER

R. H. Globus (Aerojet Liquid Rocket Co.) and E. M. VanderWall (Aerojet Liquid Rocket Co.)

1972

ARC-10523

Coiled section of tubing measures viscous properties of gelled cryogenic propellants under conditions closely resembling flow in rocket engine systems. Characteristic flow curve provides data necessary for the design of prototype hardware systems using the liquid or gel of interest.

B72-10188

RESTARTABLE HEAT PIPE

A. P. Shlosinger (TRW Systems Group)

1972

ARC-10198

Inclusion in heat pipe of auxiliary working fluid which has considerably lower freezing point than main working fluid enables easy starting after main working fluid has been cooled to or below freezing point.

B72-10190

HAND-HELD PHOTOMICROSCOPY SYSTEM

H. R. Zabower

May 1972

ARC-10468

Photomicroscopy system, with simple optics and any standard microscope objective, is used with any type of motion picture, still, or television camera system. Device performs well under difficult environmental conditions and applies to work in ecological studies, field hospitals, and geological surveys.

B72-10192

SOLAR SENSOR WITH AUTOCOLLIMATOR

D. L. Fain (Exotech, Inc.), J. M. Hall (Exotech, Inc.), and D. F. Johnson (Exotech, Inc.)

May 1972 See also NASA-CR-73260

ARC-10148

Monolithic structure, consisting of fused quartz fabricated solar sensor and autocollimator, measures angle between reference surface on spacecraft and solar vector. Device compensates for errors caused by changes in the alignment of its mountings or component parts. Integrated concept is advantageous whenever sensor mounting errors constitute problems.

B72-10196

WIDE-RANGE DYNAMIC PRESSURE SENSOR

J. Dimeff and J. W. Lane

May 1972 See also NASA-SP-5020

ARC-10263

Transducer measures pressure by sensing the damping of a

03 PHYSICAL SCIENCES

vibrating diaphragm immersed in the atmosphere to be measured. Improved sensor can be included in rugged, lightweight package for use aboard aircraft, meteorological vehicles, and space probes.

B72-10198 NONDISPERSIVE INFRARED ANALYZER FOR SPECIFIC GASES IN COMPLEX MIXTURES

J. Dimeff, R. W. Donaldson, Jr., W. D. Gunter, and G. J. Deboo
May 1972

ARC-10308

Analyzer identifies and measures particular diatomic or polyatomic gases in complex gas mixtures. Mixing of absorption effects on light energy passing through gases to photodetector produces a signal component that is related to the absorption caused by reference-gas component in unknown gas mixture.

B72-10202 FABRICATION OF LARGE CERAMIC ELECTROLYTE DISKS S. A. Ring (Appl. Electrochem., Inc.)

May 1972

ARC-10320

Process for sintering compressed ceramic powders produces large ceramic disks for use as electrolytes in high-temperature electrolytic cells. Thin, strain-free uniformly dense disks as large as 30 cm squared have been fabricated by slicing ceramic slugs produced by this technique.

B72-10206 DIATOMIC INFRARED GASDYNAMIC LASER PERMITS SELECTION OF WAVELENGTHS

R. L. McKenzie

May 1972 See also NASA-TM-X-62006

ARC-10370

Laser utilizes infrared-active diatomic gas which emits laser energy from numerous upper vibrational levels. Wavelengths depend on particular vibration-rotation transitions and have been obtained throughout the band between 4.78 and 5.4 microns, for example, when using carbon monoxide.

B72-10207 SIMPLE GAS CHROMATOGRAPHIC SYSTEM FOR ANALYSIS OF MICROBIAL RESPIRATORY GASES

G. C. Carle

May 1972

ARC-10403

Dual column ambient temperature system, consisting of pair of capillary columns, microbead thermistor detector and micro gas-sampling valve, is used in remote life-detection equipment for space experiments. Performance outweighs advantage gained by utilizing single-column systems to reduce weight, conserve carrier gas and operate at lower power levels.

B72-10208 HYDROGEN ELIMINATOR

R. J. Kiraly (TRW, Inc.)

May 1972

ARC-10408

Vented hydrogen is converted into water by mixing hydrogen with sufficient air to ensure that a flame cannot be maintained and then passing it through a reactor containing palladium catalyst; reaction takes place at relatively low temperature. Device may have wide range of applications for air purification.

B72-10209 SENSITIVE HOLOGRAPHIC DETECTION OF SMALL AERODYNAMIC PERTURBATIONS

L. O. Heflinger (TRW Systems Group)

May 1972 See also NASA-CR-114274

ARC-10422

Phase modulations enhance the sensitivity of holographic techniques for detecting disturbances which are caused by variations in gas density of the order of 1/10 wavelength or less. In the readout, subject perturbations show up as brightenings on a dark background.

B72-10212 RADIOISOTOPE THERMIONIC POWER SUPPLY FOR SPACECRAFT

W. G. Homeyer (Gulf Gen. Atomic), A. J. Gietzen (Gulf Gen. Atomic), and C. A. Heath

May 1972

ARC-10438

Power supply design for unmanned electric propulsion missions to outer planets utilizes a store of curium-244 in compact array of capsules as energy source. Supply subassemblies are: heat source, converter equipment which supplies power, and safety equipment. System is designed for a 72,000 hour mission.

B72-10217 LIQUID-HELIUM-COOLED MICHELSON INTERFEROMETER G. C. Augason and N. Young (Block Eng.)

May 1972

ARC-10554

Interferometer serves as a rocket-flight spectrometer for examination of the far infrared emission spectra of astronomical objects. The double beam interferometer is readily adapted to make spectral scans and for use as a detector of discrete line emissions.

B72-10221 SILVER-CHLORINE FUEL CELL: A CONCEPT

M. Lieberman (ESSO Res. and Eng. Co.)

1972 See also NASA-CR-94407

ARC-10491

Fuel cell regenerated by photochemical reduction enables novel slurry system to transport particles of reduced silver between regenerator section and anode. Fundamental reactions which provide electrical power from the fuel cell are given.

B72-10227 SIMPLE DYNAMIC ELECTROMAGNETIC RADIATION DETECTOR

J. F. Been

May 1972

LEWIS-11159

Detector monitors gamma dose rate at particular position in a radiation facility where a mixed neutron-gamma environment exists, thus determining reactor power level changes. Device also maps gamma intensity profile across a neutron-gamma beam.

B72-10232 IMPROVED INTENSIFYING SCREEN REDUCES X-RAY EXPOSURE

R. A. Buchanan (Lockheed Aircraft Corp.)

May 1972

AEC-10090

X-ray intensifying screen may make possible radiographic procedures where detection speed and X-ray tube power have been the limiting factors. Device will reduce total population exposure to harmful radiation in the United States.

B72-10240 LABORATORY LEAK TESTER PROVIDES HIGH SENSITIVITY

E. G. Hayes

May 1972

AEC-10042

Detecting unit is capable of measuring leak rates of 10 to the minus 5th power cc/sec or less. Device can be mounted in a carrying case and consists of three vacuum chambers, two pressure gages, and positive seal type control valves.

B72-10242 IMPROVED HIGH-PERFORMANCE SHOCK TUBE

W. A. Menard

Aug. 1972

NPO-11885

Mylar diaphragms in shock tubes are a major improvement over steel diaphragms. Other improvements include: better electrode design; improved flow by opening the throat and

removing all constrictions; and improved driver geometry by optimizing volume and shape.

B72-10244
DIRECT ANALYSIS OF HYDROGEN/DEUTERIUM MIXTURES: A CONCEPT

H. C. Lord
Sep. 1972
NPO-11322

Fraction of deuterium/hydrogen mixture is isolated by column chromatography, ionized, and the HD+1-0 band absorption measured with conventional high-resolution infrared spectrophotometer.

B72-10246
WATER CAVITY DEGASSER FOR ELECTROLYSIS CELLS

F. H. Schubert (TRW, Inc.)
Sep. 1972
ARC-10244

Degasser, a cylindrical container made of plastic thick enough to withstand operating pressures of electrolysis module, removes accumulated gases from water cavities without loss of electrolyte.

B72-10248
PRESSURE-PROBE ASSEMBLY FOR WIND TUNNELS

R. L. Warfield (Boeing Co.)
Sep. 1972
ARC-10569

Rake mounting design reduces aerodynamic-surface discontinuities to a minimum when installed in boundary layer bleed area. Mounting base is not required and, because of simplicity, rake can be manufactured at low cost.

B72-10251
AN ELECTROHYDRODYNAMIC HEAT PIPE

T. B. Jones (Colo. State Univ.)
Sep. 1972
ARC-10601

Dielectric liquid for transfer of heat provides liquid flow from the condenser section to the evaporator section in conventional heat pipes. Working fluid is guided or pumped by an array of wire electrodes connected to a high-voltage source.

B72-10259
HIGH EFFICIENCY COLLECTOR FOR MICROWAVE TUBES

H. C. Kosmahl
Jun. 1972 See also NASA-TN-D-6093
LEWIS-11192

Depressed collector has basic configuration of a dish with a central cone and protruding spike. This geometry velocity sorts and slows the electrons down to minimum velocity at collection, and prevents backstreaming of secondaries and reflected primaries into interaction region of the tube.

B72-10260
HYBRID HOLOGRAPHIC SYSTEM

R. L. Kurtz and B. N. Norden
Jun. 1972
M-FS-20074

Improved holographic system has high degree of resolution and capability of providing a hologram of a moving object without requiring that the system have a high mechanical stability.

B72-10263
EVALUATION OF JET ENGINE NOISE

S. P. Pao (Wyle Labs.)
Jun. 1972
M-FS-21416

Three basic equations, acoustic mode and two Mach modes, characterize jet noise environments. These equations are used to predict noise generation magnitude.

B72-10270
SEPARATION OF GAS MIXTURES BY CENTRIFUGATION

C. Park and W. L. Love
1972

ARC-10449

Magnetohydrodynamic (MHD) centrifuge utilizing electric currents and magnetic fields produces a magnetic force which develops supersonic rotational velocities in gas mixtures. Device is superior to ordinary centrifuge because rotation of gas mixture is produced by MHD force rather than mechanical means.

B72-10273
OXYGEN RECLAMATION WITH SOLID OXIDE ELECTROLYTES

W. Smart (Appl. Electrochem., Inc.) and J. Weissbart (Appl. Electrochem., Inc.)
Jul. 1972 See also NASA-CR-73464

ARC-10487

Electrolyte operated at an elevated temperature in an electrolysis cell regenerates oxygen from metabolic carbon dioxide found in closed-cycle cabin atmospheres.

B72-10274
INTERFEROMETRIC ROTATION SENSOR

T. M. Walsh
Jul. 1972
ARC-10278

Sensor generates interference fringes varying in number (horizontally and vertically) as a function of the total angular deviation relative to the line-of-sight axis. Device eliminates errors from zero or null shift due to lack of electrical circuitry stability.

B72-10276
THERMAL CONTROL FOR STORAGE OF CRYOGENIC PROPELLANTS IN A COMMON-BULKHEAD TANK: A CONCEPT

G. R. Stone (Gen. Dyn./Convair)
Sep. 1972 See also B72-10277; B72-10278;
NASA-CR-109833

ARC-10558

Simple, reliable ground-hold refrigeration system for common-bulkhead tank meets design criteria and objectives for ground-hold of oxygen difluoride and diborane. System is failsafe and malfunctions can be rectified without interruption of basic system functions.

B72-10277
SAFE TRANSPORT OF DIBORANE IN A DUAL REFRIGERANT SYSTEM: A CONCEPT

G. R. Stone (Gen. Dyn./Convair)
Sep. 1972 See also B72-10276; B72-10278;
NASA-CR-109833

ARC-10559

Mobile transport system, that can be carried by truck and parked in storage area, consists of an inner container capable of holding 363 kg of diborane and an external, dual refrigeration unit which uses liquid nitrogen and Freon-14.

B72-10278
THERMAL CONTROL FOR STORAGE OF CRYOGENIC PROPELLANTS IN A MULTIPLE-TANK SYSTEM: A CONCEPT

G. R. Stone (Gen. Dyn./Convair)
Sep. 1972 See also B72-10276; B72-10277;
NASA-CR-109833

ARC-10560

Development of system for storing cryogenic propellants in multiple tank configuration is discussed. System uses single loop and closed loop features. Liquid nitrogen and Freon-14 are used as refrigerants. Diagram of equipment to show components and operation is provided.

B72-10302
MULTIPURPOSE TOP FOR LIQUID HELIUM DEWAR

R. S. Murphy and J. R. Anderholm
Sep. 1972
ARC-10533

Multipurpose top was fabricated for liquid helium Dewar flask which guards against flash vaporization of liquid helium and allows boiling temperature of liquid helium to be lowered

03 PHYSICAL SCIENCES

by reduction of ambient pressure in Dewar flask. Device is rugged and simple, and does not require frequent calibrations or adjustments.

B72-10307 REDIRECTING ELECTROMAGNETIC BEAMS THROUGH WIDE ANGLES

J. Dimeff, R. M. Brown, and M. Omura
Sep. 1972
ARC-10602

Electromagnetic wave enters reflector array consisting of grid work of metallic reflectors with each reflector obscuring a portion of its neighbors to prevent direct passage of wave through grid. Antenna movement involves reduced amplitude of angular motion and internal cancellations of translational and rotational inertias.

B72-10310 OPTICAL ENHANCEMENT OF SENSITIVITY IN LASER DOPPLER VELOCITY SYSTEMS

G. R. Grant, W. D. Gunter, Jr., and S. A. Shaw
Sep. 1972 See also B71-10113
ARC-10653

Utilization of optical enhancement techniques prevents loss of light by reflections at the photocathode of a photomultiplier and increases signal detection sensitivity.

B72-10312 A SENSITIVE IMAGE INTENSIFIER WHICH USES INERT GAS

Q. A. Kerns (Calif. Univ.) and H. M. Miller (Calif. Univ.)
Dec. 1972
LRL-10024

High gain optical image intensifier utilizes inert gas cavity with copper electrodes to form electron avalanches without excessive pulse voltages. Estimated optical gain for device is two times 10 to the power of seven.

B72-10314 A CRYOPUMP FOR COOLING OBJECTS AT A DISTANCE

P. J. Batson and N. Milleron
Dec. 1972
LRL-10031

Design and construction of cryopump is reported that feeds from primary source to cool component up to 30 ft from source. Liquid oxygen or nitrogen is gravity fed through loop system to copper fibers enclosing component at room temperature where fluid boils, cools object, vaporizes and recycles through tubing loop.

B72-10317 SUNSPOT ANALYSIS AND PREDICTION

Innovator not given (Ark. Univ.) Jul. 1972
M-FS-21724

Evaluation of several procedures that apply rarely used and exotic mathematical functions yields a unique method of application of common trigonometric functions. These functions appear to produce results in the development of a mathematical model capable of describing all available sunspot data.

B72-10324 BAFFLE TO CONFINED GLOW DISCHARGE IN ION PUMP

E. S. J. Wang (McDonnell-Douglas Corp.)
Jul. 1972
M-FS-21575

Electrically-grounded 'optically tight' baffle installed downstream from conventional metal screen prevents discharge from entering test chamber and disturbing test process.

B72-10327 A COMPACT SPECTRORADIOMETER FOR SOLAR SIMULATOR MEASUREMENTS

H. H. Seward (MIT), I. G. McWilliams (MIT), and G. A. Davidson (MIT)
Jul. 1972
HQ-10683

Compact spectral irradiance probe has been designed and

built which uses wedge filter in conjunction with silicon cell and operational amplifier. Probe is used to monitor spectral energy distribution of solar simulators and other high intensity sources.

B72-10341 ACOUSTIC SPECTRAL ANALYSIS AND TESTING TECHNIQUES

C. D. Hayes, M. D. Lamers, J. W. Shipley, and R. A. Slusser
Jul. 1972 See also JPL-TM-33-422; JPL-TR-32-928-Rev-1; JPL-TR-32-1052; JPL-TR-32-1141
NPO-11554

Subjects covered in four reports are described including: (1) mathematical techniques for combining decibel levels of octaves or constant bandwidth; (2) techniques for determining equation for power spectral density function; (3) computer program to analyze acoustical test data; and (4) computer simulation of horn responses utilizing hyperbolic horn theory.

B72-10351 COMPOSITE MOBILE SYSTEM FOR HOLOGRAPHIC NONDESTRUCTIVE TESTING

R. L. Kurtz
Jul. 1972
M-FS-21704

Innovation provides a single system flexible enough to test objects ranging from large amplitude displacement and/or velocities down to extremely small displacements and/or velocities by making only a few minor adjustments in the component arrangements.

B72-10354 HELIUM LEAK MEASUREMENTS USING CO₂ AS A CARRIER

B. C. Moore (McDonnell-Douglas Astronautics Co.) and R. G. Camarillo (McDonnell-Douglas Astronautics Co.)
Jul. 1972
M-FS-21742

Detection delay defects are omitted by using helium mass spectrometer leak detector combined with several known procedures. Technique combines carbon dioxide purging, cryogenic separating helium accumulation, and use of carbon dioxide as carrier gas.

B72-10360 ALTERNATING CURRENT LOSSES IN SUPERCONDUCTING COILS

S. L. Wipf (N. Am. Rockwell Corp.) and C. A. Guderjahn (N. Am. Rockwell Corp.)
Jun. 1972
M-FS-21129

Report examines relationship between coil loss and frequency and heat loss in coil as a function of the magnetic field H. Information is of value to manufacturers of superconducting magnets, motors and generators.

B72-10368 SONIC LIMITATIONS AND STARTUP PROBLEMS OF HEAT PIPES

J. E. Deverall, J. E. Kemme, and L. W. Florschuetz
Jun. 1972 See also LA-4518
AEC-10036

Introduction of small amounts of inert, noncombustible gas aids startup in certain types of heat pipes. When the heat pipe is closely coupled to the heat sink, the startup system must be designed to bring the heat sink on-line slowly.

B72-10373 LASER FREQUENCY MODULATION WITH ELECTRON PLASMA

T. J. Burgess and V. R. Latorre
Jun. 1972
AEC-10079

When laser beam passes through electron plasma its frequency shifts by amount proportional to plasma density. This density varies with modulating signal resulting in corresponding modula-

tion of laser beam frequency. Necessary apparatus is relatively inexpensive since crystals are not required.

B72-10375

OPTICAL DEVICE FOR PRODUCING COLOR LINE SCAN DISPLAY FROM MONOCHROME OSCILLOSCOPE TRACES

L. P. Kopia

Jul. 1972

LANGLEY-10896

Novel device allows generation of simultaneous color line scan from the face of a monochrome cathode ray tube. Device consists of four dichroic beam splitters, two each of red reflectance (cyan transmittance) and blue reflectance (yellow transmittance).

B72-10379

FILTER CASSETTE FOR HIGH VOLUME AIR SAMPLER

R. B. King, J. S. Fordyce, L. Rosenblum, J. Toma, J. C. Burr, Jr. (Cleveland Div. of Air Pollution Control), and B. L. Burger (EPA)

Jul. 1972

LEWIS-11469

Filter cassette eliminates or substantially reduces contamination of filter media by extraneous material and facilitates handling.

B72-10387

ROTARY SHUTTER MECHANISM CONTAINS OPTICAL ELEMENTS

A. O. Weilbach (Beckman Instr., Inc.)

Dec. 1972

GSFC-11244

Two cylindrical shutter mechanisms having fixed outer sleeves and rotating inner sleeves use single stepping motor and Geneva mechanism to sequentially move optical components into path of ultraviolet monochromator for output control to photomultiplier. Photometric and wavelength calibration sources insure shutter positions according to operational phases.

B72-10388

AN IMPROVED APOCHROMATIC WEDGE UTILIZING OPTICAL MOLECULAR CONTACT BONDING

C. M. Fewell (Sperry Rand Corp.)

Jul. 1972

GSFC-11082

Three elements of the apochromatic wedge are assembled by optical molecular contact, eliminating all difficulties and inaccuracies inherent in cement bonding.

B72-10389

TRANSMISSION OF OPTICAL FREQUENCIES WITH MINIMAL LOSSES

C. H. Townes (MIT), R. Y. Chiao (MIT), and E. M. Garmire (MIT)

Jul. 1972

HQ-10541

Application of diffractionless dielectrics as transmitting media between laser beam source and receiver is discussed. Optical properties of transmitting media are described and general system diagram is illustrated. Use of system in power transmission, communications, surgery, and machinery is explained.

B72-10435

ALIGNMENT MICROSCOPE FOR ROTATING LASER SCANNER

A. Maciel, Jr. (Singer-Gen. Precision, Inc.) and J. C. Beck (Singer-Gen. Precision, Inc.)

Dec. 1972

MSC-14118

Microscopic assembly for alignment of rotary laser focuses on small film area along scan line at oblique angle. Suitable choice of angle and location of optical components project laser beam line as X coordinate recticle. Coordination with horizontal recticle line included in microscope facilitates Y coordinate position indexing.

B72-10440

EFFICIENT WIRE-GRID DUPLEXER-POLARIZED FOR CO₂ LASERS

P. K. Cheo (Aerojet-Gen. Corp.) and C. D. Bass (Aerojet-Gen. Corp.)

Dec. 1972

GSFC-11403

Chromium wire grid duplexer-polarizer for 10 micrometer carbon dioxide laser communication system is produced by depositing photo-resist film onto silicon substrate, grating by

two collimated cadmium helium laser beams, covering of surface with thin chromium layer, and subsequent stripping of uncoated portion to expose etched wires.

B72-10443

HIGH TEMPERATURE PERMEAMETER FOR MEASURING MAGNETIC PROPERTIES

J. P. Barranger

Aug. 1972 See also NASA-TN-D-6659

LEWIS-11609

Instrument for measuring magnetic permeability of materials undergoing heat treatment as method for monitoring stress relief and tempering is described. Procedure is based on magnetic potentiometer principle with yoke compensating coils to cancel effects of reluctance of yoke and joint gaps. Instrument is heated with specimen being heat treated.

B72-10460

RADIOLOGICAL CONTROL MANUAL

J. W. Noblin

Aug. 1972

M-FS-22092

Objectives of the manual are to (1) ensure compliance with requirements of AEC and governmental health agencies, (2) ensure against excessive and unnecessary exposure of personnel to harmful radiation, and (3) prevent contamination of equipment, materials, and environment with radioactive materials.

B72-10465

MAGNETS WITH STABILIZED CONDUCTORS

C. K. Jones (Westinghouse Elec. Corp.) and J. R. Gavalier (Westinghouse Elec. Corp.)

Aug. 1972

HQ-10727

Method fabricates stabilized composite conductor, for use in construction of magnets, using equal amounts of superconducting and metal materials, thus reducing weight, cost and size.

B72-10472

FREQUENCY-WAVELENGTH CALCULATOR WITH TABLE OF DIELECTRIC PROPERTIES

L. L. Thompson

Aug. 1972

GSFC-11200

Frequency-wavelength calculator has been developed which rapidly and accurately calculates wavelength of given frequency in specific dielectric material. Unit fits into shirt pocket and includes table of dielectric properties and one-step calculator.

B72-10478

WIDE-RANGE NUCLEAR MAGNETIC RESONANCE DETECTOR

J. C. Sturman and R. J. Jirberg

Aug. 1972 See also NASA-TN-D-6338

LEWIS-11513

Compact and easy to use solid state nuclear magnetic resonance detector is designed for measuring field strength to 20 teslas in cryogenically cooled magnets. Extremely low noise and high sensitivity make detector applicable to nearly all types of analytical nuclear magnetic resonance measurements and can be used in high temperature and radiation environments.

B72-10485

METASTABLE ATOM PROBE FOR MEASURING ELECTRON BEAM DENSITY PROFILES

J. M. Lockhart (Mich. Univ.) and J. C. Zorn (Mich. Univ.)

Aug. 1972

M-FS-21593

Metastable atom probe was developed for measuring current density in electron beam as function of two arbitrary coordinates, with spatial resolution better than 0.5 mm. Probe shows effects of space charge, magnetic fields, and other factors which influence electron current density, but operates with such low beam densities that introduced perturbation is very small.

B72-10487

A COMPTON SCATTER ATTENUATION GAMMA RAY SPECTROMETER

W. E. Austin (GE)

Aug. 1972

M-FS-21441

Compton attenuation technique, utilizing semiconductor sum-Compton detectors, has been proposed for gamma ray

03 PHYSICAL SCIENCES

spectrometer capable of gamma spectral measurements in radiation fields of 100 R/hr to one million R/hr. Spectrometer consists of two or more separate detectors, with only primary detector exposed to primary incident photon flux.

B72-10495

INTERFEROMETRIC MEASUREMENT OF THE VELOCITY OF RADIATING PARTICLES

S. Aisenberg (Space Sci., Inc.)

Aug. 1972

HQ-10371

Electro-optical system for measuring very small Doppler shift displacements of spectral wavelengths emitted by atoms and ions in high velocity plasma beam is discussed. Operation of circuits is described and circuit diagram is included.

B72-10500

FLEXIBLE SHIELDING SYSTEM FOR RADIATION PROTECTION

A. Babin

Dec. 1972

LRL-10028

Modular construction of low cost flexible radiation shielding panels consists of water filled steels cans, zinc bromide windows, turntable unit, master-slave manipulators, and interlocking lead bricks. Easy modifications of shielding wall thicknesses are obtained by rearranging overall geometry of portable components.

B72-10516

PARTICLE DETECTION WITH INTENSIFIED LASER BEAM

R. G. Knollenberg (Chicago Univ.)

Aug. 1972

HQ-10645

Application of external and laser output mirrors to produce intensified light beam for measurement of light scattered by dispersed particles is described. Use of fiber optics bundles to collect light is discussed. Diagram of equipment and principles of operation are presented.

B72-10520

ACOUSTO-OPTIC FILTER FOR ELECTRONIC LASER TUNING

S. E. Harris (Stanford Univ.)

Dec. 1972

HQ-10715

Electronically tunable lithium niobate filter utilizes acoustic-optic diffraction for tuning laser to desired frequencies. Filter placed inside laser cavity diffracts incident optical signal of one polarization into orthogonal polarization by collinearly propagating acoustic beam to desired wavelength.

B72-10521

IMPROVED OPTICAL FILTERS FOR AUTOMATED VISUAL INSPECTION

D. A. Curtis (Little / Arthur D. / Inc.)

Aug. 1972

HQ-10720

Sides of spatial filter slits are shaped so that their contribution to signal is reduced, thus minimizing the number of scanning errors.

B72-10524

AN ABSORPTION SPECTRUM AMPLIFIER FOR DETERMINING GAS COMPOSITION

E. F. Zalewski (NBS), N. C. Peterson (NBS), M. J. Kurylo (NBS), A. M. Bass (NBS), W. Brown (NBS), and R. A. Keller (NBS)

Aug. 1972

HQ-10752

Compositions of gas samples are frequently studied by laser absorption spectroscopy. Sensitivity is improved by two orders of magnitude when absorption cell is placed inside an organic-dye laser cavity.

B72-10528

HIGH-INTENSITY SOURCE OF EXTREME ULTRAVIOLET

E. Paresce (Calif. Univ.), S. Kumar (Calif. Univ.), and S. Bowyer

(Calif. Univ.)

Aug. 1972

HQ-10754

High intensity ultraviolet radiation source was developed which is suitable for emission below 500 Å. Source, useful for 100 to 1000 Å range, is simple and inexpensive to construct, easy to operate, and very stable. Because of sufficiently intense output spectrum, source can be used with monochromator at wavelengths as low as 160 Å.

B72-10532

TEMPERATURE CONTROL OF A CRYOGENIC BATH

I. M. Asher (MIT)

Aug. 1972

HQ-10788

Foreign gas introduced into vapor phase above liquid region cools cryogenic baths. Equipment consists of gas tank and cover of styrofoam. Helium is considered the best choice to produce cooling, though any gas with boiling point lower than that of bath liquid may be used.

B72-10549

HYDROPHOBIC LIQUID/GAS SEPARATOR FOR HEAT PIPES

B. D. Marcus (TRW Systems Group)

Sep. 1972

ARC-10656

Perforated nonwetting plug of material such as polytetrafluoroethylene is mounted in gas reservoir feed tube, preferably at end which extends into heat pipe condenser section, to prevent liquid from entering gas reservoir of passively controlled heat pipe.

B72-10554

OVERFLOW SENSOR FOR CRYOGENIC FLUID VESSELS

W. M. Tener

Sep. 1972

NPO-10619

Overflow sensor for cryogenic fluid vessels has been designed by winding electrical resistance element on porous tubular coil form. Form is positioned in overflow vent of cryogenic fluid vessel where it can differentiate vapor from liquid at same temperature.

B72-10556

HELIUM WINDOW FOR SHOCK-TUBE MONOCHROMATORS

G. M. Thomas

Sep. 1972

NPO-11852

Technique for coupling vacuum ultraviolet monochromator to shock tube to avoid loss of high energy ultraviolet light during quantitative measurements is described. System consists of helium gas window pumping through small aperture in entrance pupil of monochromator. Diagram of equipment and principles of operation are presented.

B72-10563

MEASUREMENT OF ELECTRON DENSITY AND TEMPERATURE IN PLASMAS

K. W. Billman, P. D. Rowley, L. L. Presley, and J. Stallcop

Sep. 1972

ARC-10598

Application of two laser wavelengths passing through plasma measures electron density and temperature. Function depends on determining absorption of light at two wavelengths. Nature of reaction is explained and schematic diagram of equipment is included.

B72-10567

REMOTE MEASUREMENT OF THE WATER CONTENT OF SNOWPACKS

W. I. Linlor

Sep. 1972

ARC-10651

Electronic equipment for sensing moisture content of snowpacks is described. Components of electronic test equipment

are illustrated and methods of conducting tests are explained. Possibilities for airborne sensing are examined.

**B72-10571
LASER MASS SPECTROMETER**

K. A. Lincoln
Sep. 1972

ARC-10687

Development of time of flight mass spectrometer using laser powered vaporization source is discussed. Operation of equipment to measure thermal velocities of individual mass species is described. Illustration of test equipment installation and detailed line drawing of ion producing equipment are provided.

**B72-10572
OSCILLATION OF LASER-BEAM INTENSITY AS OBSERVED WITH BEAM SPLITTERS**

D. M. Kuehn
Sep. 1972

ARC-10694

Characteristics of nearly perfectly flat beam splitter for observing laser pulse shapes are discussed. Disadvantages of conventional instruments for observing properties of laser beams are described. Effects of high frequency noise on accuracy of measurement are reported.

**B72-10611
A TRANSMITTING AND REFLECTING DIFFUSER FOR ULTRAVIOLET LIGHT**

L. S. Keafer, Jr., E. E. Burcher, and L. P. Kopia
Jan. 1972

LANGLEY-10385

Fabrication of ultraviolet radiation diffusing layer in configuration that uses ultraviolet properties of fused silica condensate is discussed. Construction and operation of the device are described. Diagram of reflecting diffuser to show construction and method of operation is included.

**B72-10629
MAGNETOMETER USES BISMUTH-SELENIDE**

J. A. Woollman, I. L. Spain (Md. Univ.), and H. Beale (Calif. Univ.)
1972

LEWIS-11632

Characteristics of bismuth-selenide magnetometer are described. Advantages of bismuth-selenide magnetometer over standard magnetometers are stressed. Thermal stability of bismuth-selenide magnetometer is analyzed. Linearity of output versus magnetic field over wide range of temperatures is reported.

**B72-10654
PREVENTION OF CATHODE DAMAGE FROM POSITIVE ION BOMBARDMENT**

W. H. Bennett (N. C. State Univ.)
Dec. 1972

HQ-10688

Mixed alkaline earth oxide compounds deposited into hole at cathode surface center prevent ion back bombardment damage, to cathode by reducing oxide layer and by creating metallic diffusion along sides of hole for enhanced electron emission.

**B72-10655
A BI-STABLE OPTICAL DEVICE**

A. Szoke (MIT)
Dec. 1972

HQ-10701

Device was developed which produces short optical pulses of variable lengths with high peak power and without use of external modulators or independent light beams. Optical field intensity is built up inside cavity. At peak of its intensity, light is switched off.

**B72-10662
A STUDY OF RADIATION ENVIRONMENT IN SPACE AND ITS BIOLOGICAL EFFECTS**

S. B. Curtis (Boeing Co.) and M. C. Wilkinson (Boeing Co.)

Dec. 1972 See also D2-84274-1; D2-90469; NASA-CR-1037; NASA-CR-1469

HQ-10798

Biological effects on man in space resulting from galactic and solar cosmic radiation are discussed. Importance of secondary ions which contribute to galactic cosmic radiation hazards is analyzed. Mathematical model to show rate of production of secondary ions of given atomic number at various points in absorber is presented.

**B72-10665
SELF-CALIBRATING REMOTE ATMOSPHERIC ELECTRO-MAGNETIC PROBE AND DATA ACQUISITION SYSTEM**

K. A. Kadrmas
Oct. 1972

M-FS-21212

Design and development of electromagnetic probe is discussed. Probe is designed to measure wind speed, turbulence levels, and aerosol content of atmosphere. Data are used to construct real-time, three dimensional map of atmospheric composition.

**B72-10670
A METHOD OF ELIMINATING HYDROGEN MASER WALL SHIFT**

M. W. Levine (Smithsonian Astrophys. Obs.) and R. F. C. Vessot (Smithsonian Astrophys. Obs.)

Dec. 1972

HQ-10663

Maser output frequency shift was prevented by storage bulb kept at temperature at which wall shift is zero and effects of bulb size, shape, and surface texture are eliminated. Servo system is shown, along with bidirectional counter.

**B72-10699
ACCURATE MEASUREMENT OF GAS VOLUMES BY LIQUID DISPLACEMENT**

J. D. Christian
Dec. 1972

ARC-10723

Mariotte bottle as liquid displacement device was used to measure gas volumes at flow rates that are far below threshold of wet test gas meters. Study of factors affecting amount of liquid displaced by gas flow was completed, and equations were derived which relate different variables.

**B72-10700
PARALLEL-PLATE VISCOMETER**

H. T. Fearnough, R. F. Fedors, R. F. Landel, and T. H. Sauer
Dec. 1972

NPO-11387

Viscometer consists of movable vertical rod with one optical flat fixed to its lower end and centered over second optical flat held rigidly parallel to moveable flat. Two perforated diaphragms of thin metal permit limited amount of vertical movement of rod carrying movable flat, but resist lateral movement.

**B72-10701
THIN-FILM ULTRAVIOLET DETECTOR AND SPECTROMETER**

G. W. Lewicki and J. Maserjian
Dec. 1972

NPO-11432

Typical metal-insulator-metal detector device is formed on quartz substrate. Base electrode is 3 to 6 nm aluminum layer, overcoated with 3 to 6 nm aluminum oxide or aluminum nitride, and capped with counter electrode of gold, lead, magnesium, or aluminum. Photoelectric yield data are given for Al-AIN-Au structure.

**B72-10702
COMPARATIVE PERFORMANCE OF DOUBLE-FOCUS AND QUADRUPOLE MASS SPECTROMETERS**

S. K. Wilson
Dec. 1972 See also JPL-TM-33-456

NPO-11689

03 PHYSICAL SCIENCES

Light-weight flight type double focus and quadruple mass spectrometer models were compared. Data cover size, weight, and power sensitivity required to achieve same resolution sensitivity at given mass number. Comparison was made using mathematical relationships. Analysis was confined to equal ion source area sensitivity variations not more than 40% over mass range.

B72-10703 GAS-FLOW RESTRICTOR

G. J. Bastien
Dec. 1972
NPO-10117

Gas flow restrictor is described, consisting of predetermined length and size of capillary tubing to control flow rate of carrier gas into gas chromatograph of flow rate of sample gas into mass spectrometer inlet system. Length and inner diameter of capillary tubing was estimated with mathematical expressions for viscous flow.

B72-10706 TRANSONIC DIVIDER FOR GAS CHROMATOGRAPH EFFLUENTS

J. B. Wellman
Dec. 1972
NPO-11479

Transonic effluent divider system was developed which permits varying mass input of gas chromatographic effluent into mass spectrometer without affecting performance of gas chromatograph. Mechanisms of operation are described.

B72-10707 COMPUTATION OF LAMINAR HEAT TRANSFER FROM GASEOUS PLASMAS IN ELECTROMAGNETIC FIELDS

T. K. Bose
Dec. 1972 See also JPL-TR-32-1447
NPO-11725

Heat transfer analysis procedure is presented for two-temperature gaseous plasma. Analysis is based on laminar flow of singly-ionized, quasineutral plasma with variable properties. Sheath analysis is described for species in accelerating field, decelerating field, emitted from wall, and recombining at wall.

B72-10720 ERASABLE HOLOGRAPHIC MEDIUM USING CIS-TRANSISOMERIZATION

A. H. Adelman (Battelle-Columbus Lab.) and H. M. Grotta (Battelle-Columbus Lab.)
Dec. 1972
M-FS-22062

Photochemical process has been developed for recording of erasable holograms by utilizing reversible transformation of two isomers of molecule upon exposure to light. Hologram system records, reads, and erases in response to changes in refractive index of mixture of isomers.

B72-10727 TECHNIQUE FOR REFOCUSING, DECOMPRESSING, AND CONDITIONING SPENT ELECTRON BEAMS

H. G. Kosmahl
Dec. 1972 See also NASA-CR-121026; NASA-TN-D-6093
LEWIS-11617

System to improve space communication by refocusing spent electron beams is described. System reduces transverse velocity components in beam and dilutes current densities to acceptable levels. Diagram of principles of operation is included.

04 MATERIALS/CHEMISTRY

B72-10002 SMALL-SCALE EXPLOSIVE WELDING OF ALUMINUM

L. J. Bement
1972

LANGLEY-10941

Welding technique uses very small quantities of explosive ribbon to accomplish small-scale lap-welding of aluminum plates. Technique can perform small controlled welding with no length limitations and requires minimal protective shielding.

B72-10005 FLAME RESISTANT ELASTIC ELASTOMERIC FIBERS

J. T. Howarth (Little /Arthur D./, Inc.) and A. A. Massucco (Little /Arthur D./, Inc.)
Sep. 1972 See also NASA-CR-115227
MSC-13923-4

Development of materials to improve flame resistance of elastic elastomeric fibers is discussed. Two approaches, synthesis of polyether based urethanes and modification of synthesized urethanes with flame retardant additives, are described. Specific applications of both techniques are presented.

B72-10019 EXPERIMENTAL STUDY OF SURFACE CRACKS

Innovator not given (Southwest Res. Inst.) 1972 See also NASA-CR-114934
MSC-14032

Analysis of plastic zones surrounding surface cracks in stressed steel and titanium plates subjected to tensile loading shows that back surface dimpling develops at stress levels considerably lower than those predicted by theoretical models of yield zone penetration into back surface.

B72-10027 IMPROVED ELASTOMER FOR USE WITH OXYGEN DIFLUORIDE

J. W. Martin (TRW Systems Group) and J. L. Bell (TRW Systems Group)
1972 See also NASA-CR-115902
ARC-10528

Method improves resistance of CIS-1,4-poly(butadiene) elastomers to attack by oxygen difluoride at low temperatures by replacing silica reinforcement with less reactive substances. Improved elastomeric compound is utilized in bladders, diaphragms, valves, O-rings and seals.

B72-10028 SPECIMEN FOR HIGH-TEMPERATURE TENSILE TESTS

C. D. Coulbert (Marquardt Co.)
1972

ARC-10531

Split nut with internal taper to hold specially formed specimen composed of filaments of refractory material provides means for holding at high temperature and under tension so that performance evaluations may be made.

B72-10029 ISOTROPIC PYROLYTIC CARBONS

H. Shimizu (Marquardt Co.)
1972

ARC-10532

Depositing carbon on high-temperature substrate that is kept in motion by vibration produces isotropic pyrolytic graphite or carbon without using fluidized beds.

B72-10038 USE OF THIN PLASTIC FILMS AT CRYOGENIC TEMPERATURES

R. F. Lark, J. T. Hoggatt (Boeing Co.), K. E. Wiedekamp (Boeing Co.), and J. G. Shdo (Boeing Co.)
1972 See also NASA-CR-54433; NASA-CR-72115; NASA-CR-72134; ; NASA-CR-72418; ; NASA-CR-72432; NASA-CR-72502; NASA-TM-X-1555
LEWIS-11047

Commercially available plastic film materials that remain flexible at cryogenic temperatures and resist failures caused by folds and wrinkles created during expulsion were investigated for use in expulsion bladders for liquefied gases. Compatible

adhesive systems, fabrication techniques, and results of impact and dynamic loading tests are summarized.

B72-10044
A METHOD OF ISOLATING ORGANIC COMPOUNDS PRESENT IN WATER

G. V. Calder, J. Fritz, and G. A. Junk
 1972

AEC-10010

Water sample is passed through a column containing macrorotular resin, which absorbs only nonionic organic compounds. These compounds are selectively separated using aqueous eluents of varying pH, or completely exuded with small amount of an organic eluent.

B72-10063
OPTICAL BONDING AGENTS FOR SEVERE ENVIRONMENTS

S. F. Pellicori (Santa Barbara Res. Center)
 1972

ARC-10459

Test results and applications of elastors (General Electric RTV 665, Dow Corning (DC) XR-63-488, DC 93-500, DC 182, and DC 184) considered for use as optical bonding agents in aerospace environments are presented.

B72-10090
SHEET PLASTIC FILTERS FOR SOLAR CELLS

R. J. Wizenick (Electro-Opt. Systems)
 1972

NPO-11464

Poly(vinylidene fluoride) (PVF) film protects solar cells on Mars surface from radiation and prevents degradation of solar cell surfaces by Martian dust storms. PVF films may replace glass or quartz windows on solar cell arrays used to generate power on earth.

B72-10115
PROMOTION OF DROPWISE CONDENSATION OF ETHYL ALCOHOL, METHYL ALCOHOL, AND ACETONE BY POLYTETRAFLUOROETHYLENE

C. E. Kirby
 1972

LANGLEY-10940

Coating condensing surfaces with thin layer of nonpolar Teflon results in dropwise condensation of polar organic vapor. Greater heat transfer coefficients are produced increasing effectiveness of condensing system. Investigation shows that vapors with strong dipole moment tend to condense dropwise.

B72-10129
PREVENTING OIL MIGRATION IN VACUUM SYSTEMS

M. Cridlin
 May 1972

GSFC-11253

Method which uses a disposable metal gasket that is removed when system is deactivated eliminates oil migration from mechanical pump to other areas of the system.

B72-10136
LUBRICANT SELECTION FOR GEAR DESIGNERS

D. P. Townsend
 1972 See also NASA-TM-X-52942

LEWIS-11483

Guide for gear designers, consisting of theory, calculations, charts, curves and references, explains lubrication requirements for gears to insure maximum performance. Mechanical and service variables are considered in order to obtain optimum gear performance under severe operating conditions.

B72-10137
CARBON MONOXIDE OXIDATION RATES COMPUTED FOR AUTOMOBILE THERMAL REACTOR CONDITIONS

R. S. Brokaw and D. A. Bittker
 May 1972 See also NASA-TN-D-7024

LEWIS-11638

Carbon monoxide oxidation rates in thermal reactors for exhaust manifolds are computed by integrating differential equations for system of twenty-nine reversible chemical reactions. Reactors are noncatalytic replacements for conventional exhaust manifolds and are a system for reducing carbon monoxide and hydrocarbons in automobile exhausts.

B72-10144
AN EMPIRICAL RELATIONSHIP FOR THE PENETRATION OF 1 TO 3 MeV ELECTRONS

F. R. Stevenson
 May 1972

LEWIS-11495

Empirical correlation of high energy electrons into materials allows predictions of practical ranges (measure of electron penetration) for different elements and alloys.

B72-10150
ADVANCED PROTECTIVE COATING FOR SUPERALLOYS

R. C. Elam (Pratt and Whitney), F. P. Talboom (Pratt and Whitney), and L. W. Wilson (Pratt and Whitney)
 Dec. 1972 See also NASA-CR-72813

LEWIS-11473

Superior oxidation protection for nickel-base alloys at temperatures up to 1367 K was obtained with cobalt-base alloy coating. Coating had 25 Cr, 14 Al, and 0.5 Y weight percent composition. Coating was applied by electron beam vapor deposition to thickness of 76 to 127 microns.

B72-10157
NONDESTRUCTIVE TEST STANDARDS FOR EVALUATION OF FIBER-REINFORCED COMPOSITES

W. M. Pless (Lockheed-Ga. Co.), B. L. Weil (Lockheed-Ga. Co.), W. H. Lewis (Lockheed-Ga. Co.), and G. W. Burton (Lockheed-Ga. Co.)

May 1972

M-FS-21288

Advanced composite standards, representing potential variations occurring when composites are processed into finished structures, were designed, fabricated and tested. Testing methods utilized were ultrasonic C-scan, radiography, and infrared.

B72-10161
HALOGENATION OF MICROCAPSULE WALLS

T. R. Davis (Natl. Cash Register Co.), C. K. Schaab (Natl. Cash Register Co.), and J. C. Scott (Natl. Cash Register Co.)
 1972

ARC-10410

Procedure for halogenation of confining walls of both gelatin and gelatin-phenolic resin capsules is similar to that used for microencapsulation. Ten percent halogen content renders capsule wall nonburning; any higher content enhances flame-retardant properties of selected internal phase material. Halogenation decreases permeability of wall material to encapsulated materials.

B72-10172
IMPROVED SYNTHESIS OF INTERMETAL COMPOUNDS

J. S. Haggerty (Little / Arthur D., Inc.) and J. Wenckus (Little / Arthur D., Inc.)
 May 1972

HQ-10690

Method in crystal growth using liquid encapsulation techniques permits GaAs synthesis of materials from constituent elements whose vapor pressures are high at temperature at which they react spontaneously. Techniques may be useful for synthesis of GaP.

B72-10175
NEW POLYIMIDE POLYMER HAS EXCELLENT PROCESSING CHARACTERISTICS WITH IMPROVED THERMO-OXIDATIVE AND HYDROLYTIC STABILITIES

R. J. Jones (TRW, Inc.), R. W. Vaughan (TRW, Inc.), and W. P. Kendrick (TRW, Inc.)

May 1972 See also B69-10118; B70-10300; B70-10330; NASA-CR-72633

LEWIS-11323

04 MATERIALS/CHEMISTRY

Polyimide P10P and its processing technique apply to most high temperature plastic products, devices and castings. Prepolymer, when used as varnish, impregnates fibers directly and is able to be processed into advanced composites. Material may also be used as molding powder and adhesive.

B72-10187

SUPERIOR CRYOGENIC INSULATION DEVELOPED

D. V. Hale (Lockheed Missiles and Space Co.), M. J. O'Neill (Lockheed Missiles and Space Co.), and A. J. McDaniel (Lockheed Missiles and Space Co.)

May 1972

M-FS-21560

Multilayer composite consisting of alternate spunbond nylon layers and doubly aluminized mylar layers is used primarily in cryogenic thermal protection systems.

B72-10199

HIGH-TEMPERATURE CERAMIC-TO-CERAMIC SEALS

W. Smart (Appl. Electrochem., Inc.)

May 1972 See also NASA-CR-73464

ARC-10319

Noble-metal brazes applied to appropriately prepared zirconia parts produces a gas-tight, durable seal that can withstand temperature of 825 C for over 2000 hours without deterioration.

B72-10201

COMPARISON OF CATALYST ACTIVITY

T. J. Jennings (Shell Develop. Co.) and H. H. Voge (Shell Develop. Co.)

May 1972

ARC-10493

Reactions of highly active catalysts are compared by allowing temperature of catalyst bed, initially at 77 K, to increase slowly; marked deviation in smooth warming curve denotes temperature at which detectable reaction occurs. The lower the temperature at which reaction commences, the more active the catalyst.

B72-10215

CONVOLUTED FABRIC FOR FULL-PRESSURE GLOVES

W. Elkins (Space Age Control, Inc.), C. Breslin (Space Age Control, Inc.), and H. Price (Space Age Control, Inc.)

May 1972 See also NASA-CR-114365

ARC-10529

Fabric, made of nylon ripstop coated with Neoprene, provides expansive and contractive mobility along posterior surface of glove fingers allowing maximum digital dexterity and tactility.

B72-10223

INITIATION OF POLYMERIZATION BY TETRABUTYLAMMONIUM p-LITHIOPHENOXIDE

S. M. Hirshfield (Rocketdyne)

1972 See also B72-10184

ARC-10553

Compound is an efficient initiator capable of producing a polymer with a phenol group at the initiating end of the chain. Derivative may be used as a polymerization initiator to produce large quantities of phenol-terminated polymers.

B72-10230

WATER PURIFICATION BY REVERSE OSMOSIS USING HETEROCYCLIC POLYMER MEMBRANES

H. Scott (Franklin Inst. Res. Labs.)

May 1972 See also NASA-CR-1648

LANGLEY-10514

Pyrrone (polyimidazopyrrolone) polymers are a new class of thermally stable, radiation and chemical resistant aromatic-heterocyclic polymers featuring a greater chemical and mechanical durability than cellulose acetate.

B72-10231

ADHESION THEORY REVIEW

N. J. DeLollis

May 1972 See also SC-RR-70-915

AEC-10083

Bonding theories reviewed include physical adsorption,

hydrogen bonding, chemisorption and surface energy; bond failure mechanisms include phase discontinuity, swelling and corrosion. Concept of bond failure by water desorption is introduced and discussed.

B72-10234

IMPROVED METHOD FOR PRODUCING METAL-REINFORCED CERAMICS

R. L. Landingham

May 1972

AEC-10070

Vacuum impregnation process produces metal-reinforced ceramics with only 3 percent void space volumes. Method may be used to produce metal-reinforced ceramics for high temperature or structural applications such as furnace supports and armor.

B72-10235

HIGH STRENGTH, MEDIUM DENSITY MOLDED FOAM

J. R. Fender (Bendix Corp.)

May 1972

AEC-10053

Toluene diisocyanate-based polyurethane produces molded-to-size foam products. Formulation techniques optimize dimension stability, strength and moldability.

B72-10247

INSOLUBILIZED ENZYMES FOR FOOD SYNTHESIS

D. L. Marshall (Battelle Mem. Inst.)

Sep. 1972

ARC-10568

Cellulose matrix with numerous enzyme-coated silica particles of colloidal size permanently bound at various sites within matrix was produced that has high activity and possesses requisite physical characteristics for filtration or column operations. Product also allows coupling step in synthesis of edible food to proceed under mild conditions.

B72-10249

OXYGEN CARRIER FOR GAS CHROMATOGRAPHIC ANALYSIS OF INERT GASES IN PROPELLANTS

W. A. Cannon (McDonnell-Douglas Corp.)

Sep. 1972 See also NASA-CR-97860

ARC-10574

Gas chromatographic determination of small quantities of inert gases in reactive propellants is discussed. Operating conditions used for specific analyses of helium in diborane and nitrogen in oxygen difluoride are presented in tabular form.

B72-10256

A PROTECTIVE COATING FOR STAINLESS STEEL

S. J. Grisaffe and E. W. Klechka

May 1972 See also NASA-TM-X-2201

LEWIS-11267

Comparative furnace oxidation tests prove that coating provides high temperature oxidation and erosion resistance.

B72-10257

POLYMERIC COATINGS USING ELECTRONIC EXCITATION

S. M. Lee (N. Am. Rockwell Corp.)

Jun. 1972

HQ-10698

Process has been developed for glow discharge polymerization which is accomplished in inert atmosphere by using vacuum chamber. Polymeric coating, in this type of environment, produces high molecular weight coating polymers that have good stability and are resistant to abrasions and solvents.

B72-10262

DEVELOPMENT OF A POLYIMIDE FOR USE AS A TEMPERATURE AND SOLVENT RESISTANT SEALANT

J. S. Roscoe (Quantum, Inc.) and B. F. Clark (Quantum, Inc.)

Jul. 1972

M-FS-21325

Polyimide developed by the interaction of benzophenone tetracarboxylic dianhydride, polyoxypropylene diamine, and

oxydianiline is used for fuel tanks that are exposed to extreme temperatures.

B72-10266

COMPOSITE CASTING DEMONSTRATION

Innovator not given (Little /Arthur D./, Inc.) Jun. 1972

M-FS-21668

Demonstration was performed to experimentally assess the potential advantages in the processing of materials in space, and specifically, to determine the effects of lack of density segregation and heat convection in the weightless environment of space.

B72-10269

FIRE RETARDANT POLYISOCYANURATE FOAM

S. R. Riccitiello and J. A. Parker

1972

ARC-10280

Fire retardant properties of low density polymer foam are increased. Foam has pendant nitrile groups which form thermally-stable heterocyclic structures at temperature below degradation temperature of urethane linkages.

B72-10280

DEVOLATILIZATION OF POLYMER RESINS

B. Seidenberg, J. Park, and C. Clatterbuck

Jun. 1972

GSFC-11358

Commercial silicon resin was devolatilized by vacuum distillation, cured at room temperature and tested favorably for outgassing criteria. Applications of the devolatilized resin are potting compounds and conformal coatings.

B72-10282

NEW TWISTED INTERMETALLIC COMPOUND SUPERCONDUCTOR: A CONCEPT

W. D. Coles, G. V. Brown, and J. C. Laurence

Jun. 1972

LEWIS-11015

Method for processing Nb₃Sn and other intermetallic compound superconductors produces a twisted, stabilized wire or tube which can be used to wind electromagnetics, armatures, rotors, and field windings for motors and generators as well as other magnetic devices.

B72-10284

A NEW VIBRATION DAMPENING ADHESIVE

S. Y. Yoshino (N. Am. Rockwell Corp.)

Jul. 1972

MSC-17668

Formulation of polymers has been devised that, when vibrated, adhesive becomes more fluid (thixotropic) to better absorb shock and, when warmed, will actually hold its shape better (thermosetting) rather than deform.

B72-10290

HIGH VOLTAGE ELECTRICAL INSULATION COATING FOR REFRACTORY MATERIALS

W. E. Lent (Hughes Aircraft Co.)

Jun. 1972 See also NASA-CR-72677

LEWIS-11479

Formula and process have been developed for coating refractory metal surfaces with high voltage electrical insulation for use at temperatures to 600 C. Coatings were specifically developed as an insulation for the surface of a perforated, molybdenum, ion-accelerator grid, but are not limited to this application.

B72-10291

IMPROVED THERMALLY CONDUCTING ELECTRON TRANSFER POLYMERS

R. K. Jenkins (McDonnell-Douglas Corp.), N. R. Byrd (McDonnell-Douglas Corp.), and J. L. Lister (McDonnell-Douglas Corp.)

Jun. 1972

GSFC-11304

Development of polymers with improved heat transfer

coefficients for use in encapsulating electronic modules is discussed. Chemical reactions for synthesizing the polymers are described and thermodynamic and physical properties are analyzed.

B72-10294

GRAPHITE AND BORON-REINFORCED COMPOSITE MATERIALS DATA SUMMARY

Innovator not given (Gen. Dyn. Corp.) Jun. 1972

M-FS-21691

Data summary is collection of information on typical processing techniques. Mechanical properties, and physical properties of advanced composite materials which are being considered for structural applications on advanced space vehicles.

B72-10300

POLYIMIDE FOAMS PROVIDE THERMAL INSULATION AND FIRE PROTECTION

R. W. Rosser

Sep. 1972

ARC-10464

Chemical reactions to produce polyimide foams for application as thermal insulation and fire prevention materials are discussed. Thermal and physical properties of the polyimides are described. Methods for improving basic formulations to produce desired qualities are included.

B72-10305

CATALYST FOR SODIUM CHLORATE DECOMPOSITION

T. J. Wydeven

Sep. 1972

ARC-10584

Production of oxygen by rapid decomposition of cobalt oxide and sodium chlorate mixture is discussed. Cobalt oxide serves as catalyst to accelerate reaction. Temperature conditions and chemical processes involved are described.

B72-10306

MICROMINIATURE GAS CHROMATOGRAPHIC COLUMN

R. W. Donaldson, Jr.

Sep. 1972

ARC-10594

Techniques commonly used for fabrication of integrated circuits are utilized to produce long capillary tubes for microminiature chromatographs. Method involves bonding of flat silicon plate to top of spirally grooved silicon chip to close groove and form capillary column.

B72-10309

STABILIZATION OF POROUS GLASS REVERSE-OSMOSIS MEMBRANES

E. V. Ballou, M. I. Leban, and T. Wydeven

Sep. 1972

ARC-10646

Application of porous glass in form of capillary tubes for low capacity ion exchange in hyperfiltration experiments is discussed. Efficiency of desalination by process of reverse osmosis is described. Stabilization of porous glass membrane by presence of aluminum chloride is analyzed.

B72-10313

INORGANIC GLASS CERAMIC SLIP RINGS

E. W. Glossbrenner (Litton Precision Products, Inc.) and S. R. Cole (Litton Precision Products, Inc.)

Jun. 1972

M-FS-20711

Prototypes of slip rings have been fabricated from ceramic glass, a material which is highly resistant to deterioration due to high temperature. Slip ring assemblies were not structurally damaged by mechanical tests and performed satisfactorily for 200 hours.

B72-10318

MAGNETIC-DOPED ALLOYS WITH VERY LARGE SEEBECK COEFFICIENTS

D. J. Sellmeyer (MIT) and J. Zagarins (MIT)

Jul. 1972

04 MATERIALS/CHEMISTRY

M-FS-21410

Preliminary results of this study show that, based on selection of magnetic solute and nonmagnetic solvent from periodic table, alloys having Seebeck coefficients approaching 100 micron V/K can be obtained.

B72-10320

PLASMA CALCINING OF PIGMENT PARTICLES FOR THERMAL CONTROL COATINGS

E. P. Farley (Stanford Res. Inst.)

Jul. 1972

M-FS-21267

Method utilizes an RF excited plasma to surface deactivate thermally stable powders at high temperatures. Utilization of this plasma heat treatment at high temperatures can be carried out without grain growth, calcination, or agglomeration.

B72-10321

TITANIUM ALLOY STRESS CORROSION CRACKING IN PRESENCE OF DINITROGEN TETROXIDE

A. Z. Conner (Hercules, Inc.), J. F. G. Clarke, Jr. (Hercules, Inc.), J. A. Gailey (Hercules, Inc.), and A. A. Orr (Hercules, Inc.)

Jul. 1972

M-FS-21113

Study resulting in a satisfactory stress corrosion cracking test with extremely consistent results produced six new analytical methods. Methods detect and determine differences in the minor constituent composition of different types of dinitrogen tetroxide.

B72-10328

TRACE CONTAMINANT ADSORPTION AND SORBENT REGENERATION IN CLOSED ECOLOGICAL SYSTEMS

C. R. Arnold (Lockheed Missiles and Space Co.), G. J. Kersels (Lockheed Missiles and Space Co.), R. P. Merrill (Lockheed Missiles and Space Co.), A. J. Robell (Lockheed Missiles and Space Co.), and A. Wheeler (Lockheed Missiles and Space Co.)

Dec. 1972 See also NASA-CR-1582

LANGLEY-10681

Correlation was obtained for determining sorptive capacity of carbon for pure and mixed contaminants under dry and humid conditions at various temperatures. Vacuum desorption rates were investigated for single particles and for sorbent beds. For sorbent beds, rate-determining step is Knudsen diffusion through interparticle voids.

B72-10333

ANALYSIS OF THERMAL STRESS AND METAL MOVEMENT DURING WELDING

J. B. Andrews (MIT) and K. Masubuchi (MIT)

Jul. 1972

M-FS-20984

Objectives of study were: investigation of temperature changes caused by welding arc with analysis of temperature distribution; development of system of mathematical statements describing thermal stresses and plastic strains during welding; and development of system of mathematical solutions and computer programs for one-dimensional analysis.

B72-10336

STUDY OF IN-SITU DEGRADATION OF THERMAL CONTROL SURFACES

J. E. Gilligan (IIT Res. Inst.) and G. A. Zerlaut (IIT Res. Inst.)

Jul. 1972

M-FS-20892

Experimental technique used in study of damage mechanism to semiconductor pigments exposed to ultraviolet radiation can be adapted for investigations of surface chemistry and may be used analytically to determine contamination.

B72-10337

NONFLAMMABLE POTTING, ENCAPSULATING AND/OR CONFORMAL COATING COMPOUND

H. F. Kline and F. Dawn

Jul. 1972

MSC-13499

Compound formed from dimethylpolysiloxane, ammonium

phosphate, and ground glass is nonflammable in air environment, and self-extinguishing in atmosphere of 60 percent oxygen and 40 percent nitrogen. Material may have applications for reducing industrial fire hazards and should interest aircraft industry, machinery manufacturers, and automotive industry.

B72-10339

STRAIN GAGE ATTACHMENT BY SPOT WELDING REDUCES THE FATIGUE STRENGTH OF Ti-6Al-4V, RENE 41, AND INCONEL X

L. A. Imig

Jul. 1972

LANGLEY-10930

Fatigue tests were conducted with constant-amplitude axial stresses in the ratio of minimum to maximum stress of 0.05 (R=0.05). Specimens with and without strain gages were tested at 21 C, and superalloy specimens with and without strain gages were tested at 21 C and 815 C.

B72-10340

FABRICATION OF UNIAXIAL FILAMENT-REINFORCED EPOXY TUBES FOR STRUCTURAL APPLICATION

J. G. Davis, Jr.

Jul. 1972

LANGLEY-10203

Filament reinforced composite materials have high strength, high stiffness and low density. Tubes fabricated from process described have advantages of having smooth inner and outer surfaces, lower dimensional variation than tolerances set for extruded aluminum tubing and void free composites.

B72-10342

SYNTHESIS OF TEMPERATURE AND SOLVENT-RESISTANT POLYMERS

J. A. Webster (Monsanto Res. Corp.), W. J. Patterson, R. L. Moffett, and D. E. Morris

Jul. 1972

M-FS-20848; M-FS-20979; M-FS-21039

Development of silicone polymers, polyimides, and polyisocyanurates for use as insulation, coatings, or adhesives under adverse environmental conditions is discussed. Chemical structure of the organic compounds is presented. Physical and mechanical properties of the compounds are analyzed.

B72-10343

A PERMEABLE ROTATING-WHEEL SOLVENT EXTRACTOR

D. R. Kahn and L. A. Nady

Dec. 1972

LRL-10033

Column-type device reported employs circular permeable structures of wire mesh screen for extracting solvents from systems with low density differences and low interfacial tensions. Rotating screen wheels of structure fasten to shaft; stationary screen structures are supported by circular bands connected by radial metal arms.

B72-10344

HIGH STRENGTH ALLOY FOR IMMEDIATE TEMPERATURE, 24 TO 704 C (75 TO 1300 F), APPLICATIONS

J. C. Freche, R. L. Ashbrook, and W. J. Waters

Jul. 1972 See also NASA-TN-D-6560

LEWIS-11634

Application of prealloyed powder technology to the NASA-TRW-VI-A alloy shows the potential of highly alloyed normally cast superalloys for achieving superior properties at intermediate temperatures.

B72-10346

ADHESIVE FOR ALUMINUM WITHSTANDS CRYOGENIC TEMPERATURES

W. L. Hill (N. Am. Rockwell Corp.), T. Matsuoka (Hj Am. Rockwell Corp.), and J. C. Helf (N. Am. Rockwell Corp.)

Jul. 1972

M-FS-16848

Polyurethane adhesive mixed to various proportions with

milled glass fibers match the thermal characteristics of 2014-T6 aluminum at cryogenic temperatures.

B72-10353

TITANIUM REINFORCED BORON POLYIMIDE COMPOSITE

G. A. Clark (N. Am. Rockwell Corp.)

Jul. 1972

M-FS-21916

Program involves development of process technique for boron-polyimide prepeg, lay-up and curing procedures for prepegs when processed under vacuum bag pressure, and development and evaluation of titanium hard points for smooth transition of loads from titanium attach points into boron reinforced body of structure.

B72-10358

THERMALLY RESISTANT POLYMERS FOR FUEL TANK SEALANTS

J. A. Webster (Monsanto Res. Corp.)

Jul. 1972

M-FS-21232

Conversion of fluorocarbon dicarboxylic acid to intermediates whose terminal functional groups permit polymerization is discussed. Resulting polymers are used as fuel tank sealers for jet fuels at elevated temperatures. Stability and fuel resistance of the prototype polymers is explained.

B72-10364

FAILURE IN GLASS

S. C. Keeton

Jun. 1972 See also SCL-RR-710010

AEC-10088

Review of state of the art concerning glass failure mechanisms and fatigue theories discusses brittle fracture in glass, fatigue mechanisms, fatigue behavior, environmental effects on failure rate, and aging.

B72-10365

EVALUATING FOAM HETEROGENEITY

D. W. Liou (Dow Chem. Co.) and W. M. Lee (Dow Chem. Co.)

Jun. 1972 See also BDX-613-229

AEC-10046

New analytical tool is available to calculate the degree of foam heterogeneity based on the measurement of gas diffusivity values. Diffusion characteristics of plastic foam are described by a system of differential equations based on conventional diffusion theory. This approach saves research and computation time in studying mass or heat diffusion problems.

B72-10366

POLYMERIC BINDER FOR EXPLOSIVES

E. R. Bissell

Jun. 1972

AEC-10062

Chemical reaction for producing a polymer which can be mixed with explosives to produce a rigid material is discussed. Physical and chemical properties of polymers are described and chemical structure of the polymer is illustrated.

B72-10367

BONDABILITY OF RTV-SILICON RUBBER

N. J. Delollis and O. Montoya

Jun. 1972

AEC-10026

Glow discharge method for producing a bondable Room Temperature Vulcanizing (RTV) silicone is described. Mechanical and chemical properties of silicone specimens are described. Theory concerning the relationship between surface characteristics and bondability is examined with respect to the polymer specimen.

B72-10378

DISPERSION-STRENGTHENED CHROMIUM ALLOY

J. M. Blocker, Jr. (Battelle Mem. Inst.) and N. D. Veigel (Battelle Mem. Inst.)

Dec. 1972 See also NASA-CR-72404; NASA-CR-72901

LEWIS-10982

Finely divided powder mixture produced by vapor deposition of CR on small ThO₂ particles was hot pressed or pressure bonded. Resulting alloy has lower ductile-to-brittle transition temperature than pure chromium, and high strength and oxidation resistance at elevated temperatures, both in as-rolled condition and after annealing.

B72-10382

COMMON BEARING MATERIAL HAS HIGHEST FATIGUE LIFE AT MODERATE TEMPERATURE

R. J. Parker, E. V. Zaretsky, and M. W. Dietrich

Jul. 1972 See also NASA-TN-D-6179; NASA-TN-D-7033

LEWIS-11692

AISI 52100, a high carbon chromium steel, has the longest fatigue life of eight bearing materials tested. Fatigue lives of the other materials ranged from 7 to 78 percent of the fatigue life of AISI 52100 at a temperature of 340 K (150 F).

B72-10386

BORON ALUMINUM COMPOSITE STRUCTURES

R. E. Jackson (McDonnell-Douglas Corp.)

Jul. 1972

M-FS-21571

Design, analysis and fabrication techniques have been developed for boron-aluminum composite structure technology and were compared with those of conventional metal structure technology to evaluate relative performance.

B72-10396

METHOD TO DETERMINE VENTED ELECTROCHEMICAL CELL QUALITY

J. T. Stemmler

Jul. 1972

GSFC-11216

Cell mass is measured periodically or monitored continuously by balances and clocks to determine water loss and rate of mass loss during trickle charge period.

B72-10397

ION PLATING SEALS MICROCRACKS OR POROUS METAL COMPONENTS

T. Spalvins, D. H. Buckley, and W. A. Brainard

Jul. 1972 See also B67-10006

LEWIS-11657

Description of ion plating process is given. Advantage of this process is that any plating metal or alloy can be selected, whereas, for conventional welding, material selection is limited by compatibility.

B72-10401

DEFLECTION RESISTANCE INDICATOR

H. S. Massey (N. Am. Rockwell Corp.), H. L. Pontious (N. Am. Rockwell Corp.), and W. M. Zinsley (N. Am. Rockwell Corp.)

Dec. 1972

M-FS-24010

Instrument for nondestructively measuring compression resistance of spray foam used as thermal insulation was developed. Cylindrical indicator has probe with coil spring to provide force and indicating dial. Probe is manually pressed against area to be tested until complete foot area contacts foam surfaces.

B72-10406

INSULATING EFFECTIVENESS OF SELF-SPACING DIMPLED FOIL

J. A. Bond (GE)

Dec. 1972

LEWIS-10941

Experimental data are graphed for determining conductive heat losses of multilayer insulation as function of number of foil layers. Foil was 0.0051 cm thick Nb, 1% Zr refractory alloy, dimpled to 0.0254 cm with approximately 28 dimples/sq cm. Heat losses were determined at 0.1 microtorr between 700 and 1089 K.

B72-10412

PURIFICATION OF CONTAMINATED WATER BY FILTRA-

TION THROUGH POROUS GLASS

T. Wydeven and M. I. Leban

Sep. 1972

ARC-10655

Method for purifying water that is contaminated with mineral salts and soluble organic compounds is described. Method consists of high pressure filtration of contaminated water through stabilized porous glass membranes. Procedure for conducting filtration is described. Types of materials by percentage amounts removed from the water are identified.

B72-10413**RAPID EVALUATION OF REVERSE-OSMOSIS MEMBRANES**

J. R. Hollahan and T. Wydeven

Sep. 1972

ARC-10659

Simultaneous reverse-osmosis tests conducted with centrifuges having multiple compartment heads are discussed. Equipment for retaining reverse-osmosis membrane is illustrated. Method of conducting tests is described.

B72-10416**ELECTROMAGNETIC RHEOMETER**

R. H. Globus (Aerojet Liquid Rocket Co.) and J. A. Cabeal (Aerojet Liquid Rocket Co.)

Aug. 1972 See also B72-10026

ARC-10525

Force required to pull free a small circular plate imbedded in gel liquid is determined. Procedure for measuring the structure of a gel is given.

B72-10418**TECHNIQUE FOR INCREASING YIELD OF TRIFLUORONITROSOMETHANE-TETRAFLUOROETHYLENE COPOLYMER**

S. A. Glickman (Thiokol Chem. Corp.)

Aug. 1972

ARC-10566

Polymerization technique using equimolar amounts of trifluoronitrosomethane and tetrafluoroethylene to increase yield of copolymer is described. Yields were increased by ninety percent and final product displayed better physical properties. Test equipment and chemical reactions for process are described.

B72-10419**FREE-RADICAL SOLUTION-POLYMERIZATION OF TRIFLUORONITROSOMETHANE WITH TETRAFLUOROETHYLENE**

S. A. Glickman (Thiokol Chem. Corp.)

Aug. 1972

ARC-10567

Heavy-walled glass reactor, equipped with aerosol-compatible couplings and needle valve and charged with solvent and initiator, is utilized for polymerization. Polymer conversions and reactor/vessel operation are discussed.

B72-10420**REGENERABLE METALLIC OXIDE SYSTEMS FOR REMOVAL OF CARBON DIOXIDE: A CONCEPT**

J. G. Sutton (Hamilton Std.), P. F. Heimlich (Hamilton Std.), and E. H. Tepper (Hamilton Std.)

Aug. 1972

ARC-10570

Design concepts for portable canisters for removal of carbon dioxide are described. One is screen pack configuration consisting of brazed rectangular canister with four metal oxide packs inserted. Other is radial flow canister with perforated central tube. Methods of production and operating principles are presented.

B72-10421**SOLID AMINE COMPOUNDS AS SORBENTS FOR CARBON DIOXIDE: A CONCEPT**

J. G. Sutton (Hamilton Std.), P. F. Heimlich (Hamilton Std.), and E. H. Tepper (Hamilton Std.)

Aug. 1972

ARC-10571

Solid amine compounds were examined as possible sorbents for removal of carbon dioxide in life support systems of type which may be employed in high altitude aircraft, spacecraft, or submarines. Many solid amine compounds release absorbed carbon dioxide when heated in vacuum, therefore, when properly packaged spent amine compounds can be readily regenerated and put back into service.

B72-10422**PHOSPHONIUM CHLORIDE FOR THERMAL STORAGE**

J. G. Sutton (Hamilton Std.), P. F. Heimlich (Hamilton Std.), and E. H. Tepper (Hamilton Std.)

Aug. 1972

ARC-10572

Development of systems for storage of thermal energy is discussed. Application of phosphonium chloride for heat storage through reversible dissociation is described. Chemical, physical, and thermodynamic properties of phosphonium chloride are analyzed and dangers in using phosphonium chloride are explained.

B72-10423**FABRICATION OF CARBON FILM COMPOSITES FOR HIGH-STRENGTH STRUCTURES**

P. R. Preiswerk (Astro Res. Corp.) and M. Lippman (Astro Res. Corp.)

Aug. 1972 See also NASA-CR-1972

ARC-10613

Physical and mechanical properties of fiber composite materials consisting of carbon films are described. Application of carbon film structural composites for constructing microwave filters or optical instruments is proposed. Applications in aerospace and architectural structures for high strength and low density properties are discussed.

B72-10424**IMPROVED MAGNESIA FOR THERMAL CONTROL COATINGS**

H. Levin (Hughes Aircraft Co.), C. C. Berggren (Hughes Aircraft Co.), and W. M. Peffley (Hughes Aircraft Co.)

Aug. 1972 See also NASA-CR-73337

ARC-10677

Formation of radiation-generated color centers using single crystals of magnesium oxide is discussed. Crystal structure of magnesium oxide is described. Chemical processes used to produce magnesium oxide with desired color center kinetics are presented. Proton irradiation of magnesium oxide crystals was conducted to determine lattice defects.

B72-10425**ALUMINUM NITRIDE INSULATING FILMS FOR MOSFET DEVICES**

G. W. Lewicki and J. Maserjian

Aug. 1972

NPO-11859

Application of aluminum nitrides as electrical insulator for electric capacitors is discussed. Electrical properties of aluminum nitrides are analyzed and specific use with field effect transistors is defined. Operational limits of field effect transistors are developed.

B72-10430**STRENGTHENING LIGHTWEIGHT CONCRETE**

A. Auskern

Jul. 1972

AEC-10017

Polymer absorption by lightweight concretes to improve bonding between cement and aggregate and to increase strength of cement is discussed. Compressive strength of treated cement is compared with strength of untreated product. Process for producing polymers is described.

B72-10431**FLUIDIZED-BED COMBUSTION REDUCES ATMOSPHERIC POLLUTANTS**

A. A. Jonke

Dec. 1972

AEC-10085

Method of reducing sulfur and nitrogen oxides released during combustion of fossil fuels is described. Fuel is burned in fluidized bed of solids with simultaneous feeding of crushed or pulverized limestone to control emission. Process also offers high heat transfer rates and efficient contacting for gas-solid reactions.

B72-10438**PROPOSED SEMICONDUCTOR FILM IMPROVEMENT**

H. M. Manasevit (N. Am. Aviation, Inc.)

Jul. 1972

HQ-10685

Film grown in inert carriers (A, He, or N) displays low impurity, high mobility, and improved crystal structure. Annealing steps used in growing process improves film quality and allows utilization of film for Gunn and LSA devices.

B72-10439**ELECTRON BEAM CHEMISTRY PRODUCES HIGH PURITY METALS**

W. H. Philipp, C. E. May, S. J. Marsik, and R. A. Lad

Jul. 1972 See also NASA-TM-X-67982

LEWIS-11639

Application of radiation chemistry for deposition of metals by irradiation of aqueous solutions with high energy electrons is presented. Design of reaction vessel for irradiation of solution is illustrated. Features of radiochemical technique and procedures followed are described.

B72-10449**LEACHING OF NITROSO RUBBER MATERIAL REMOVES UNCURED POLYMER**

W. A. Bratfisch (N. Am. Rockwell Corp.) and R. Gonzalez (N. Am. Rockwell Corp.)

Aug. 1972

MSC-17185

New leaching process removes uncured polymer from nitroso rubber, elastomer used in presence of nitrogen tetroxide. Uncured portion is removed by controlled soaking of polymer slab in Freon TF. Leaching with Freon TF prevents nitroso rubber from adhering to adjoining surfaces and limiting its usefulness in either static or dynamic applications.

B72-10451**CHEMICAL MODIFICATION OF POLY(p-PHENYLENE) FOR USE IN ABLATIVE COMPOSITIONS**

J. A. Parker, A. H. Heimbuch, D. N. Vincent (N. Am. Rockwell Corp.), and C. L. Hammermesh (N. Am. Rockwell Corp.)

Aug. 1972

ARC-10135

Development of ablative materials based on modification of polyphenylene compounds is discussed. Chemical and physical properties are analyzed for application as heat resistant materials. Synthesis of linear polyphenylenes is described. Effects of exposure to oxyacetylene flame and composition of resultant char layer are presented.

B72-10454**NONMETALLIC IMPURITIES IMPROVE MECHANICAL PROPERTIES OF VAPOR-DEPOSITED TUNGSTEN**

J. Chin (Gulf Gen. Atomic), A. F. Weinberg (Gulf Gen. Atomic), and J. R. Lindgren (Gulf Gen. Atomic)

Aug. 1972 See also B67-10232; B71-10212

LEWIS-10800

Mechanical properties of vapor deposited tungsten are improved by selective incorporation of various nonmetallic impurities. Addition of trace quantities of carbon, nitrogen, or oxygen can significantly increase both low and high temperature yield strength without greatly affecting ductile-to-brittle transition temperature.

B72-10456**RADIATION-INDUCED NICKEL DEPOSITS**

S. J. Marsik and W. H. Philipp

Dec. 1972 See also NASA-SP-227

LEWIS-10965

Low cost, photographic process uses surface coating of nickel hypophosphite sensitive to X-rays and electron radiation. Exposed coated surface can be amplified to produce permanent visible image of wide tonal gradation in grays. Coating may be sodium, ammonium, or lithium hypophosphite or sodium rhosphite, with nickel supplied in developer.

B72-10464**PHASE-CHANGE MATERIALS HANDBOOK**

D. V. Hale (Lockheed Missiles and Space Co.), M. J. Hoover (Lockheed Missiles and Space Co.), and M. J. O'Neill (Lockheed Missiles and Space Co.)

Aug. 1972

M-FS-22064

Handbook describes relationship between phase-change materials and more conventional thermal control techniques and discusses materials' space and terrestrial applications. Material properties of most promising phase-change materials and purposes and uses of metallic filler materials in phase-change material composites are provided.

B72-10469**RESEARCH ON BEARING LUBRICANTS FOR USE IN A HIGH VACUUM**

M. E. Campbell (Midwest Res. Inst.) and H. Hass (Midwest Res. Inst.)

Aug. 1972

M-FS-22119

Work, during the research program, was concentrated on lubricant development, gear lubrication and evaluation, providing coated test specimens, advising NASA contractors about solid lubrication specific applications, and investigation of new method of attaching lubricating solids to bearing surfaces by sputtering technique.

B72-10473**PROCESS FOR SYNTHESIZING AND FORMULATING CONDENSED RING POLYMERS**

C. T. Hughes (Avco Corp.) and R. J. McHenry (Avco Corp.)

Aug. 1972 See also NASA-CR-1633

LANGLEY-10423

Chemical process for forming low molecular weight, fully cyclized heteroaromatic prepolymers under conditions which limit chain extension or branching is described. Exact procedures used in conducting chemical reaction are defined. Advantages of process over conventional methods are presented.

B72-10491**FLOATING ZONE PROCESS FOR DRAWING SMALL DIAMETER FIBERS OF REFRACTORY MATERIALS**

L. J. Westfall (Little / Arthur D., Inc.), J. Haggerty, W. P. Menashi (Little / Arthur D., Inc.), and J. F. Wenckus (Little / Arthur D., Inc.)

Aug. 1972 See also NASA-CR-72811

LEWIS-11380

New process produces controlled purity, very high strength, single crystal fibers of materials with melting points to 4000 C. Process has been used to make single crystal fibers of highly refractory ceramics such as aluminum oxide, titanium carbide and yttrium oxide.

B72-10493**FUNCTIONALLY TERMINATED LIQUID NITROSO FLUORO-CARBON TERPOLYMERS**

N. Mayes (Thiokol Chem. Corp.) and A. Marcellis (Thiokol Chem. Corp.)

Aug. 1972

M-FS-21539

Properties of polymer for conformal coating for electronic circuitry are described. Nitroso fluorocarbon polymers were selected for application. Chemical reactions for production of polymers are discussed. Technique allows regulation of crosslink densities, molecular weight, and viscosity.

B72-10503**EQUATIONS TO ASSESS THE IMPACT RESISTANCE OF**

04 MATERIALS/CHEMISTRY

FIBER COMPOSITES

C. C. Chamis, M. P. Hanson, and T. T. Serafini
Aug. 1972 See also NASA-TM-X-67802; NASA-TN-D-64643
LEWIS-11486

Numerical analysis of impact resistance of composite materials containing fibers is discussed. Mathematical model of longitudinal impact resistance is presented. Potential impact resistance of various fiber composites as obtained by numerical analysis is presented as plotted curve.

B72-10511 IMPROVED METHOD FOR RECLAIMING VACUUM DIFFUSION PUMP OIL

A. E. Buggele and R. K. Lohwater (Bendix Corp.)
Aug. 1972

LEWIS-11647

High vacuum centrifugal molecular distillation system rapidly reclaims contaminated diffusion pump oil in continuous operation and restores it to high level of purity.

B72-10514 ADVANCED ALLOY DESIGN TECHNIQUE: HIGH TEM- PERATURE COBALT BASE SUPERALLOY

R. L. Dreshfield, J. C. Freche, and G. D. Sandrock
Aug. 1972 See also NASA-TN-D-6147

LEWIS-10436

Advanced alloy design technique was developed for treating alloys that will have extended life in service at high temperature and intermediate temperatures. Process stabilizes microstructure of the alloy by designing it so that compound identified with embrittlement is eliminated or minimized. Design process is being used to develop both nickel and cobalt-base superalloys.

B72-10515 THERMOCOUPLE TAPE

G. A. Mazaris, Jr. and R. D. Thomas
Dec. 1972 See also N71-31123

LEWIS-11072

Preformed, low cost, thin film thermocouples on adhesive tapes were fabricated. Metal strips of two dissimilar metals were laid on opposite edges of plastic substrate so that they overlap in center portion, forming thermocouple junction. Useful temperature range for polyimide films was 4 to 673 K.

B72-10517 HUMIDITY RESISTANT SOLAR CELL CONTACTS

C. J. Bishop (Boeing Co.)
Aug. 1972

HQ-10674

Gold-platinum solar cell contact is developed which does not exhibit chemical reactivity of titanium or porosity of silver. This contact offers excellent ohmic characteristics and stability in humid air.

B72-10519 SINTERED DIAMOND COMPACTS USING METALLIC COBALT BINDERS

W. F. Libby (Calif. Univ.) and H. Katzman (Calif. Univ.)
Aug. 1972

HQ-10706

Method is developed for sintering diamond powder which uses metallic cobalt as binder. Present samples show maximum microhardness of over 3000 kg/sq mm on Knoop scale. Material may be used as hard surface coating or may compete with cubic boron nitride as abrasive grain.

B72-10529 PREPARATION OF STABLE COLLOIDAL DISPERSIONS IN FLUORINATED LIQUIDS

R. Kaiser (Avco Corp.)
Aug. 1972

HQ-10580

Chemical method for separating oil from water by liquid barrier which can be positioned magnetically is described. Fluorocarbon liquids containing colloidal suspension of magnetite

is proposed. Chemical composition of magnetite and fluorinated ether polymer are presented.

B72-10544 AN IMPROVED GAS EXTRACTION FURNACE

R. B. Wilkin (Brown and Root/Northrop)
Sep. 1972

MSC-14138

Design of glass furnace for analysis of rocks to determine nature and amount of trapped gas is described. Furnace heats specimen in vacuum conditions by radio frequency induction. Diagram of apparatus to show construction and operation is provided.

B72-10550 IMMOBILIZED PHOSPHORYLASE FOR SYNTHESIS OF POLYSACCHARIDES FROM GLUCOSE

D. L. Marshall (Battelle Mem. Inst.)
Sep. 1972

ARC-10680

Continuous processes for enzymatic production of carbohydrates from glucose are discussed. Key reactant in process is identified as phosphorylase which catalyzes reversible formation or degradation of polysaccharide. Chemical compounds and reactions to synthesize polysaccharides are analyzed.

B72-10551 PTFE FILMS WITH IMPROVED FLEXIBILITY

R. F. Muraca (Stanford Res. Inst.) and A. A. Koch (Stanford Res. Inst.)

Oct. 1972 See also B72-10552

NPO-12028

Development and application of flexible polytetrafluoroethylene films for expulsion bladders in spacecraft propellant tanks are described. Flexibility of material is obtained by reducing crystallinity through annealing and quenching in water. Physical and mechanical properties of material are presented.

B72-10553 NEW TYPE OF TRIFUNCTIONAL ALCOHOL

H. E. Marsh, Jr. and J. J. Hutchison
Sep. 1972

NPO-10714

New type of trifunctional alcohol was synthesized from commercially available trimer acid. Trifunctional alcohol is hydrocarbon with widely separated terminal hydroxyl groups, and was expressly developed as crosslinking agent for preparation of polyurethane propellants, binders and case liners.

B72-10560 SUPPRESSANTS FOR LOWERING PROPELLANT BINDER BURNING RATE

W. W. Thompson (Rocketdyne)
Sep. 1972

ARC-10563

Addition of boron compound to lower burning rate of solid propellant binder is reported. Chemical reactions involved in propellant binder modification are described. Advantages of method for lowering burning rate are analyzed.

B72-10565 ANALYSIS OF MICROSIZE PARTICULATES

M. B. Blanchard, N. H. Farlow, and G. V. Ferry
Sep. 1972 See also AIAA-PAPER-71-1104

ARC-10647

Unique methods for analyzing individual particles ranging in size from 0.01 to 1000 micrometers have been developed for investigation of nature of cosmic dust. Methods are applicable to particulate aerosols and contaminants characteristically encountered in studies of air pollution and in experiments designed to abate pollution.

B72-10566 ASSESSMENT OF WATER POLLUTION BY AIRBORNE MEASUREMENT OF CHLOROPHYLL

J. C. Arvesen, E. C. Weaver, and J. P. Milland

Oct. 1972

ARC-10648

Remote measurement of chlorophyll concentrations to determine extent of water pollution is discussed. Construction and operation of radiometer to provide measurement capability are explained. Diagram of equipment is provided.

B72-10570**OXYGEN PLASMAS USED TO SYNTHESIZE SUPEROXIDES**

J. R. Hollahan and T. Wydeven

Sep. 1972

ARC-10686

Production of alkali metal superoxides by interaction of molecular oxygen with alkali metals or their salts is discussed. Diagram of reactor to show components and operating principles is provided. Analysis of chemical reactions involved is developed.

B72-10580**CHEMICAL KINETICS COMPUTER PROGRAM FOR STATIC AND FLOW REACTIONS**

D. A. Bittker and V. J. Scullin

Sep. 1972

LEWIS-11467

General chemical kinetics computer program for complex gas mixtures has been developed. Program can be used for any homogeneous reaction in either one dimensional flow or static system. It is flexible, accurate, and easy to use. It can be used for any chemical system for which species thermodynamic data and reaction rate constant data are known.

B72-10583**STUDY OF HOT HARDNESS CHARACTERISTICS OF TOOL STEELS**

J. L. Chevalier (Army Air Mobility R and D Lab.), M. W. Dietrich, and E. V. Zaretsky

Sep. 1972 See also NASA-TN-D-6632

LEWIS-11785

Hardness measurements of tool steel materials in electric furnace at elevated temperatures and low oxygen environment are discussed. Development of equation to predict short term hardness as function of initial room temperature hardness of steel is reported. Types of steel involved in the process are identified.

B72-10587**THERMAL CONDUCTIVITY AND ELECTRICAL RESISTIVITY OF POROUS MATERIALS**

J. C. Y. Koh (Boeing Co.) and A. Fortini

Oct. 1972 See also NASA-CR-120854

LEWIS-11754

Process for determining thermal conductivity and electrical resistivity of porous materials is described. Characteristics of materials are identified and used in development of mathematical models. Limitations of method are examined.

B72-10592**HIGH STRENGTH HIGH MODULUS CERAMIC FIBER**

R. N. Fetterolf (Babcock and Wilcox Co.)

Sep. 1972

M-FS-21266

Low cost method was developed for producing high strength, high modulus, continuous ceramic oxide fibers. Process transforms inexpensive metallic salts into syrup-like liquids that can be fiberized at room temperatures. Resulting salt fibers are then converted to oxides by calcination at relatively low temperatures.

B72-10594**SPARK ULTRASONIC TRANSDUCER**

J. M. Hoop

Dec. 1972

M-FS-21233

Nondestructive testing by spark transducer induces ultrasonic pulses in materials without physical contact. High power pulse generator connected to step up transformer produces sparking between two tungsten rods and ultrasonic energy pulses in test samples placed between rods.

B72-10596**INVESTIGATION OF ENVIRONMENTAL EFFECTS ON COATINGS FOR THERMAL CONTROL**

N. A. Ashford (IIT Res. Inst.), J. E. Gilligan (IIT Res. Inst.), and G. A. Zerlaut (IIT Res. Inst.)

Dec. 1972

M-FS-21932

Accomplishments made during study of coatings are reported. Development of structure/property theory for selecting most appropriate pigments for space vehicle paints is discussed along with improvements made in zinc-oxide pigmented potassium silicate paint.

B72-10612**FLEXIBLE THERMAL DEVICE**

S. D. Wallace (McDonnell-Douglas Corp.) and D. H. Elliott (McDonnell-Douglas Corp.)

Oct. 1972

M-FS-21630

Fabrication of expansion joint, vibration isolator device with sufficient cross sectional area for high thermal conductivity is discussed. Device consists of multiple layers of metal foil which may be designed to meet specific applications. Thermodynamic properties of the device and illustration of construction are provided.

B72-10627**DESIGN CRITERIA MONOGRAPH FOR HIGH-LOAD HIGH-SPEED ROLLING-CONTACT BEARINGS**

Innovator not given (Lewis Res. Center) Nov. 1972 See also NASA-SP-8048

LEWIS-11823

Monograph was published which summarizes and systematically orders large body of successful techniques and practices developed for design of liquid rocket engine turbopump bearings. Document was written to organize and present significant experience and knowledge accumulated by NASA in development and operational programs.

B72-10628**POLYIMIDE BONDED GRAPHITE FLUORIDE: A NEW LONG LIFE SOLID LUBRICANT COATING**

R. L. Fusaro and H. E. Sliney

Nov. 1972 See also NASA-TN-D-6714

LEWIS-11864

Solid lubricant film consisting of polyimide varnish as binder and graphite fluoride as lubricant is described. Comparative wear tests with other solid lubricants were conducted and results are shown in graph form. Test equipment used in conducting wear tests is reported.

B72-10633**DESIGN CRITERIA MONOGRAPH FOR PRESSURIZED METAL CASES**

Innovator not given (Lewis Res. Center) 1972 See also NASA-SP-8025

LEWIS-11835

Organization and presentation of data pertaining to design of solid propellant rocket engine cases are discussed. Design criteria are presented in form of monograph based on accumulated experience and knowledge. Improvements in reliability, cost effectiveness, and engine efficiency are stressed.

B72-10666**AUTOMATION OF BOSCH REACTION FOR CO₂ REDUCTION**

R. F. Holmes (Gen. Dyn. Corp.)

Dec. 1972

M-FS-21674

System for collecting excess carbon dioxide in space cabin is described. System collects carbon dioxide exhaled by human inhabitants and decomposes gas into carbon and water by reaction with hydrogen in presence of catalyst. Diagram of equipment involved in reaction is included.

04 MATERIALS/CHEMISTRY

B72-10684

TUNGSTEN-REINFORCED TANTALUM

R. J. Bacigalupi and R. Breitwieser

Dec. 1972

LEWIS-11750

Method is described for producing tungsten-reinforced tantalum, a material possessing the high temperature strength of tungsten and room temperature ductility and weldability of tantalum. This material is produced by bonding together and overlaying structure of tungsten wires with chemical vapor deposited tantalum.

B72-10709

ULTRAVIOLET AND THERMALLY STABLE POLYMER COMPOSITIONS

M. J. Adamson, H. R. Gloria, R. E. Goldsberry, and R. F. Reinisch

Dec. 1972

ARC-10592

Copolymers produced from aromatic substituted aromatic azine-siloxane compositions are thermally stable, solar ultraviolet light non-degradable by wavelengths shorter than those reaching earth surface.

B72-10710

REVERSE-OSMOSIS MEMBRANES BY PLASMA POLYMERIZATION

J. R. Hollahan and T. Wydeven

Dec. 1972

ARC-10696

Thin allyl amine polymer films were developed using plasma polymerization. Resulting dry composite membranes effectively reject sodium chloride during reverse osmosis. Films are 98% sodium chloride rejective, and 46% urea rejective.

B72-10711

IMPROVED ZINC OXIDE THERMAL CONTROL COATINGS

T. Freund (Stanford Res. Inst.) and S. R. Morrison (Stanford Res. Inst.)

Dec. 1972

NPO-11139

Ferricyanide/ferrocyanide couple prevents zinc oxide pigment degradation in thermal control coatings. Chemical couple retards physical optical property changes.

B72-10717

IMPROVED TRANSMITTANCE MEASUREMENT WITH A MAGNESIUM OXIDE COATED INTEGRATING SPHERE

R. L. Bowman and E. W. Spisz

Dec. 1972 See also NASA-TM-X-2395

LEWIS-11840

Simple and convenient technique has been found for extending transmittance measurement capability of conventional magnesium oxide coated integrating sphere system at low (near ultraviolet) wavelengths. Technique can be used to determine effect of contaminants on window materials and can also be used for measurements on thermal control coatings and telescope mirrors.

B72-10725

HIGH FIELD CdS DETECTOR FOR INFRARED RADIATION

R. C. Tyagi (Natl. Res. Council), K. W. Boer (Del. Univ.), H. C. Hadley (Del. Univ.), and J. B. Robertson

Dec. 1972

LANGLEY-11027

New and highly sensitive method of detecting infrared irradiation makes possible solid state infrared detector which is more sensitive near room temperature than usual photoconductive low band gap semiconductor devices. Reconfiguration of high field domains in cadmium sulphide crystals provides basis for discovery.

B72-10728

LOW-VOID POLYIMIDE RESINS FOR AUTOCLAVE PROCESSING

R. J. Jones (TRW Systems) and R. W. Vaughan (TRW Systems)

Dec. 1972 See also B69-10118; B70-10300; B70-10330; B70-10504; B71-10442; B72-10175; NASA-CR-72984

LEWIS-11665

Development of an advanced A-type polyimide, which can be used to produce autoclave molded, low-void content composites suitable for use at temperatures up to 316 C is reported. It consists of a mixture of methyl nadic anhydride, an 80:20 molar ratio of methylene dianiline and thiodianiline, and pyromellitic dianhydride.

B72-10740

BORON-10 LOADED INORGANIC SHIELDING MATERIAL

S. I. Baker (IIT Res. Inst.) and R. S. Ryskiewicz (IIT Res. Inst.)

Dec. 1972

M-FS-22280

Shielding material containing Boron 10 and gadolinium for neutron absorption has been developed to reduce interference from low energy neutrons in measurement of fission neutron spectrum using Li-6 fast neutron spectrometer.

B72-10742

HEAT TRANSFER CORRELATIONS FOR KEROSENE FUELS AND MIXTURES AND PHYSICAL PROPERTIES FOR JET A FUEL

G. H. Ackerman (Shell Oil Co.) and L. E. Faith (Shell Oil Co.)

Dec. 1972 See also LEWIS-11653; NASA-CR-72951

LEWIS-11652

Heat transfer correlations are reported for conventional Jet A fuel for both laminar and turbulent flow in circular tubes. Correlations were developed for cooling in turbine engines, but have broader applications in petroleum and chemical processing, and other industrial applications.

B72-10746

A STABLE LIQUID CRYSTAL FOR ELECTRO-OPTICAL DISPLAYS

M. M. Lakes (Temple Univ.)

Dec. 1972

HQ-10714

Method is reported for substitution of hydroxy (OH) group ortho to anil linkage to stabilize anil-type liquid crystal for use in electro-optical devices.

05 LIFE SCIENCES

B72-10006

COVALENT BONDING OF ANTIBODIES OF POLYSTYRENE LATEX BEADS: A CONCEPT

H. J. Tenoso (Aerojet-Gen.) and D. G. Smith (Aerojet-Gen.)

1972

MSC-13906

Technique facilitates purification of vaccines and production of immunoabsorption columns exhibiting relatively long stability. Information interests biochemists, medical researchers, and pharmaceutical manufacturers.

B72-10017

QUICK, EASY TO PREPARE FREEZE-DRIED SOUPS

R. V. Ramirez (Whirlpool Corp.) and R. W. Larson (Whirlpool Corp.)

1972

MSC-14003

Major advantages of soups are that they totally rehydrate in less than five minutes in water at approximately 150 deg F, maintain flavor and quality stability for two weeks in a 100 F environment, and remain stable for considerably longer at ambient temperatures. They are suitable for either household or field use.

B72-10031

NEW REACTION TESTER ACCURATE WITHIN 56 MICRO-SECONDS

H. Brown (GE)

1972

MSC-13604

Testing device measures simple and disjunctive reaction time of human subject to light stimuli. Tester consists of reaction key, logic card, panel mounted neon indicators, and interconnecting wiring. Device is used for determining reaction times of patients undergoing postoperative neurological therapy.

B72-10032**AN IMPROVED AESTHESIO METER**

D. Wright (GE) and R. Richardson (GE)

1972

MSC-13609

Biomedical tool measures cutaneous sensory perception by allowing consistent application of regular and determinable pressure to skin of the individual. Device is of relatively simple construction, inexpensive to manufacture, and easy to operate.

B72-10035**IMPLANTED TELEMETER FOR ELECTROCARDIOGRAM AND BODY TEMPERATURE**

W. F. Barrows

1972

XAC-08505

Measuring system requiring one blocking oscillator to generate modulated pulse repetition rate is implantable in the bodies of small animals. Device has life of two years and transmission range of about three feet. EKG sensing unit also is used to sense electromyogram or electrooculogram of laboratory animals.

B72-10046**WEIGHT SIMULATOR**

W. H. Howard and D. R. Young

1972

ARC-10100

Device applies compressive force to bone to minimize loss of bone calcium during weightlessness or bedrest. Force is applied through weights, or hydraulic, pneumatic or electrically actuated devices. Device is lightweight and easy to maintain and operate.

B72-10061**A DIFFERENTIAL ECG AMPLIFIER WITH SINGLE-ENDED OUTPUT**

L. Katchis (Radionics, Inc.)

1972

ARC-10411

Three-stage amplifier is used for ECG measurements which require conversion of differential input to single-ended output. Circuit may be useful in biological telemetry for amplification of signals from specimen-implanted sensors.

B72-10062**STABILIZATION OF LACTATE DEHYDROGENASE**

O. M. Friedman (Collaborative Res., Inc.)

1972 See also NASA-CR-73460

ARC-10415

Addition of substances such as dimethylsulfoxide, glycerol, and gelatin to aqueous solutions of lactate dehydrogenase maintains enzymes in stable and fully active form when stored at 2 - 6 C.

B72-10125**TIME-LAPSE CAMERA FOR MICROSCOPY**

J. E. Cook (Tex. Univ.)

1972

ARC-10423

Compact, lightweight camera which advances film frames without use of conventional sprockets and slip clutches obtains time lapse photomicrographs of human cell growth in a zero-G environment over a period of about a month.

B72-10126**PROGRAMMED PHYSIOLOGICAL INFUSION SYSTEM**

W. H. Howard, D. R. Young, and R. R. Adachi

1972

ARC-10447

Infusion system delivers incremental volumes from a reservoir

with a piston pump at a rate that varies in time and follows the envelope of a preprogrammed curve.

B72-10168**SPACE-SUIT CARBON DIOXIDE ABSORPTION SYSTEM: A CONCEPT**

R. J. Copeland (Vought Missiles and Space Co.) and B. W. Webbon (Vought Missiles and Space Co.)

1972 See also NASA-CR-114321

ARC-10546

Partial pressure of carbon dioxide within a space suit is maintained at safe levels by regenerating carbon dioxide with potassium hydroxide solution on board spacecraft or by portable units.

B72-10189**CINE RECORDING OPHTHALMOSCOPE**

J. W. Fitzgerald

May 1972

ARC-10399

Camera system provides accurate photographic recording during acceleration of centrifuge and permits immediate observation of dynamic changes in retinal circulation by a closed-circuit television loop. System consists of main camera, remote control unit, and strobe power supply unit, and is used for fluorescein studies and dynamometry sequences.

B72-10193**PROJECTIONS OF SCAN PATTERNS ON HUMAN RETINA**

D. H. Kelly (Stanford Res. Inst.) and H. D. Crane (Stanford Res. Inst.)

May 1972 See also NASA-CR-1121

ARC-10181

Fundus camera tracks eye movements by using camera optics with the aid of an inverted system. Camera provides a flying-spot circular scanning light source in the normal film plane and a broadband photodetector in position normally occupied by light source.

B72-10194**CARBON DIOXIDE CONCENTRATOR**

C. F. Williams (TRW, Inc.) and R. G. Huebscher (TRW, Inc.)

May 1972 See also NASA-CR-73397

ARC-10245

Device passed exhaled air through electrochemical cell containing alkali metal carbonate aqueous solution, and utilized platinum electrodes causing reaction of oxygen at cathode with water in electrolyte, producing hydroxyl ions which react with carbon dioxide to form carbonate ions.

B72-10195**AIRCREW OXYGEN SYSTEM**

A. D. Babinsky (TRW, Inc.), R. J. Kiraly (TRW, Inc.), and R. A. Wynveen (TRW, Inc.)

May 1972

ARC-10247

Closed-loop rebreather system which includes pilot provides oxygen for use in aircraft by safe, reliable method of low weight and size and reduces expense of ground equipment. Water electrolysis generated oxygen is fed into rebreather loop which allows nitrogen elimination and water and carbon dioxide removal.

B72-10200**HEART CATHETER CABLE AND CONNECTOR**

D. R. Harrison, F. L. Cota, and H. Sandler

May 1972

ARC-10406

Ultraminiature catheter cables that are stiff enough for intravenous insertion yet flexible at the tip, sterilizable, and economical are fabricated entirely from commercially available parts. Assembly includes air passageway for reference pressures and coaxial cable for transmission of signals from the tip of catheter.

B72-10203**VISUAL SENSITIVITY TESTER**

05 LIFE SCIENCES

R. F. Haines, J. W. Fitzgerald, and S. A. Rositano
May 1972 See also NASA-TN-D-6190
ARC-10329

Testing device uses closed loop film cassettes to project programmed visual stimuli on screen which the observer views through a lens making the stimuli appear to be at optical infinity. Tester is useful for determining changes in glaucomatous visual field sensitivity.

B72-10205
A DUAL-BEAM ACTINIC LIGHT SOURCE FOR PHOTOSYNTHESIS RESEARCH
A. P. Margozi and M. E. Henderson
May 1972
ARC-10351

Simulation of photosynthetic process in plants is accomplished by using two separate and identical optical channels that provide independently adjustable wavelengths (filters), shutter sequencing, and control intensity of illumination. In addition to experiments using electron paramagnetic resonance spectroscopy, system may be applicable to other types of research in photosynthetic field.

B72-10219
COUNTER LUNG
A. D. Babinsky (TRW, Inc.) and R. J. Kiraly (TRW, Inc.)
1972 See also NASA-CR-73396
ARC-10248

Counter lung, incorporated in closed-loop rebreathing system, accommodates user's breathing tidal volume so that the loop pressure is relatively constant during breathing cycles.

B72-10220
SCANNING TECHNIQUE FOR TRACKING SMALL EYE-MOVEMENTS
D. H. Kelly (Stanford Res. Inst.) and H. D. Crane (Stanford Res. Inst.)
1972 See also NASA-CR-114307
ARC-10488

Scanning technique images spot of blue light on fundus, measures variations in reflectance of spot and compares reflectance pattern with a stored reference pattern. Method then converts the difference from stored pattern into infrared eye motion.

B72-10224
EAR OXIMETER-TRANSDUCER MONITORS FOUR PHYSIOLOGICAL RESPONSES
J. R. Smith, Jr.
1972
XAC-05422

Device monitors blood oxygen saturation, blood pressure, pulse rate, and pulse-pressure curve during conditions of high stress in simulated space flight.

B72-10229
CONTINUOUS MONITOR FOR GAS RATIOS IN A MIXTURE
S. H. Gorland and M. J. Leroy, Jr.
May 1972 See also B67-10063; NASA-TM-X-1939
LEWIS-11095

Fluidic oscillator, incorporating piezoelectric transducer to sense molecular weight of gas mixture, is used to continuously monitor ratio of a mixture of two gases in a flowing system. Device is lightweight, compact, reliable, easy to install, and also produces a simple output signal for controller. Frequency of oscillation is measured and signal converted to ac output.

B72-10233
MERCURY IN THE ENVIRONMENT
W. Fulkerson, W. S. Lyon, W. D. Shults, and R. A. Wallace
Dec. 1972 See also ORNL-NSF-EP-1
AEC-10048

Problems in assessing mercury concentrations in environmental materials are discussed. Data for situations involving air, water, rocks, soils, sediments, sludges, fossil fuels, plants, animals, foods, and man are drawn together and briefly evaluated. Details are provided regarding the toxicity of mercury along with tentative

standards and guidelines for mercury in air, drinking water, and food.

B72-10243
QUARTZ CRYSTAL MICROBALANCE USE IN BIOLOGICAL STUDIES
R. H. Green, J. F. Godfrey, E. G. Laue, T. M. Laue, W. W. Paik, and M. D. Wardle
Aug. 1972
NPO-11346

Design, development, and applications of quartz crystal microbalance are discussed. Two types of crystals are used. One serves as reference and other senses changes in mass. Specific application to study of bacterial spores is described.

B72-10279
BALANCED-BELLOWS SPIROMETER
G. G. Holden and J. R. Smith, Jr.
Sep. 1972
XAC-01547

Compact balanced-bellows dry type spirometer was designed to be insensitive to acceleration fields along any or all coordinate axes. It provides true indication of respiratory action of test subject without need for calibration in acceleration fields.

B72-10281
IMPROVED TEMPERATURE CONTROL OF LIQUID COOLING GARMENTS
C. W. G. Flucher (GE)
Jun. 1972 See also NASA-CR-115122
MSC-13917

Skin and auditory meatus temperature readings, supply control signal for temperature control valve in fluid temperature control system which provides increased subject comfort and responds to directly measured physiological cooling needs. System applications include medical care and thermal protection garment manufacturing.

B72-10297
SPACE SUIT MAY HAVE ORTHOTIC APPLICATIONS
H. C. Vykukal
Sep. 1972
ARC-10275

Application of movable joints for spacesuits to orthotic and prosthetic devices is discussed. Specifications of the joints, degrees of movement, and details of construction are described. Illustrations of the equipment are provided.

B72-10298
REAL-TIME PAIR-FEEDING OF ANIMALS
H. A. Leon, J. P. Connolly, M. J. Hitchman, and J. E. Humbert
Sep. 1972
ARC-10302

Automatic pair-feeding system was developed which immediately dispenses same amount of food to control animal as has been consumed by experimental animal that has free access to food. System consists of: master feeding system; slave feeding station; and control mechanism. Technique performs real time pair-feeding without attendant time lag.

B72-10301
PROTECTIVE ENCAPSULATION OF IMPLANTABLE BIOTELEMETRY UNITS
N. C. Tombs and J. M. Pope
Sep. 1972
ARC-10514

Development of materials for encapsulating electronic devices used in biotelemetry is discussed. Chemical resistance of materials to effects of animal fluids is described. Silicone rubber is recommended as basic material with polymers applied to outer surface for protective coating.

B72-10303
CUTTING THIN SECTIONS OF BONE
W. W. Ashley
Sep. 1972

ARC-10555

Medical equipment for obtaining repetitive planoparallel sections of bone to study healing of bone structure under high gravity stress is described. Device consists of modified saw with diamond cutting edges. Construction of device and manner of use are explained.

B72-10334**BLOOD PRESSURE MEASUREMENT AND DISPLAY SYSTEM**

A. J. Farkas
Dec. 1972

MSC-13036

System is described that employs solid state circuitry to transmit visual display of patient's blood pressure. Response of sphygmomanometer cuff and microphone provides input signals. Signals and their amplitudes, from turn-on time to turn-off time, are continuously fed to data transmitter which transmits to display device.

B72-10371**SMALL, LOW COST, ARTIFICIAL KIDNEY**

A. R. Lavender and F. W. Markley

Dec. 1972

AEC-10011

Disposable hemodialyzer is described that can be used at home by non-medically trained personnel. Short lengths of semipermeable membrane tubes are arranged in parallel, supported by plastic mesh and encased in epoxy at ends. Tubes are connected to input and output blood manifolds which are separated by dialysate chamber. Daily dialysis requires only two hours or less.

B72-10391**COMPRESSION AND R-WAVE DETECTION OF ECG/VCG DATA**

W. L. Hayden (TRW Systems Group), M. F. Conover (TRW Systems Group), and W. P. Bennett (TRW Systems Group)

Jul. 1972 See also NASA-CR-115177

MSC-14126; MSC-14127

Application of information theory to eliminate redundant part of electrocardiogram or vectorcardiogram is described. Operation of medical equipment to obtain three dimensional study of patient is discussed. Use of fast Fourier transform to accomplish data compression is explained.

B72-10395**MICROBIOLOGICAL SURFACE SAMPLING CART**

J. R. Wilkins and S. M. Mills

Jul. 1972

LANGLEY-11069

Mobile sampling cart automatically swabs surfaces for the recovery of microorganisms. Unit operates without human involvement and provides for control of swabbing speed, rotation of cotton swab, and the pressure and angle applied to swab. Capability of reverse direction is also available. Sampling cart use is limited to flat surfaces.

B72-10402**A CONTINUOUS PHYSIOLOGICAL DATA COLLECTOR**

J. C. Bush

Jul. 1972

M-FS-20835

COP-DAC system utilizes oxygen and carbon dioxide analyzers, gas-flow meter, gas breathe-through system, analog computer, and data storage system to provide actual rather than average measurements of physiological and metabolic functions.

B72-10415**SILVER STAIN FOR ELECTRON MICROSCOPY**

R. L. Corbett

Sep. 1972

ARC-10661

Ammoniacal silver stain used for light microscopy was adapted advantageously for use with very thin biological sections required for electron microscopy. Silver stain can be performed in short

time, has more contrast, and is especially useful for low power electron microscopy.

B72-10429**PHOSPHORUS IN LAND-WATER SYSTEMS**

W. B. Bonner and T. Tamura

Dec. 1972

AEC-10049

Analyses were made to obtain information on distribution of different forms of phosphate in different environmental media, including soils, eroding material, and bottom sediment. Major emphasis was placed on determining several forms of inorganic phosphate in each medium. Results show that eroding material can transport significant quantities of phosphates from soils.

B72-10450**ULTRASONIC BONE DENSITOMETER**

J. M. Hoop

Aug. 1972

M-FS-20994

Human bone density changes can be determined by a device originally developed for in-flight testing of astronauts' bones during extended space missions. Device is comparable in size, weight and power consumption to portable television set.

B72-10461**INTRAVENOUS FLUID FLOW METER CONCEPT FOR ZERO GRAVITY ENVIRONMENT**

C. G. Miller (Serv. Technol. Corp.)

Aug. 1972

MSC-14123

Measuring chamber, included in infusion-set tubing, and peristaltic flow meter concept can be incorporated into flow meter that measures fluid flow rates between 100 and 600 cu cm per hour and at the same time maintains sterilization.

B72-10482**A MAGNETIC MOUSE ACTIVITY METER**

J. Henry (Univ. of Southern Calif.), R. P. Rader (Univ. of Southern Calif.), and J. P. Henry

Aug. 1972

HQ-10664

Activity meter has been developed using Hall effect devices that record passage of selected groups of magnetically tagged mice. Two small permanent magnets are implanted in belly and back of selected mice and electronic circuits are activated as mice move between cages. System has advantage over tagging, detecting, and identification methods currently used.

B72-10512**ELECTRONIC CIRCUIT DETECTS LEFT VENTRICULAR EJECTION EVENTS IN CARDIOVASCULAR SYSTEM**

V. D. Gebben and J. A. Webb, Jr.

Aug. 1972

LEWIS-11581

Electronic circuit processes arterial blood pressure waveform to produce discrete signals that coincide with beginning and end of left ventricular ejection. Output signals provide timing signals for computers that monitor cardiovascular systems. Circuit operates reliably for heart rates between 50 and 200 beats per minute.

B72-10522**AN EFFICIENT, SIMPLE DIALYZER**

S. A. Miller (Emory Univ.)

Dec. 1972

HQ-10741

Easily assembled, efficient, countercurrent, sandwich-type barrier dialyzer was developed. Dialyzer contains six blood chambers that provide 500 sq cm membrane area. Design membranes are cuprammonium cellulose film. Unit performance was compared with thirteen other dialyzers.

B72-10525**A REUSABLE PREPOSITIONED ATP REACTION CHAMBER**

D. G. Hoffman (Bisopherics, Inc.)

05 LIFE SCIENCES

Aug. 1972

HQ-10660

Luminescence biometer detects presence of life by means of light-emitting chemical reaction of luciferin and luciferase with adenosine triphosphate (ATP) that occurs in all living cells. Amount of light in reaction chamber is measured to determine presence and extent of life.

B72-10526

CARBON DIOXIDE CONCENTRATION INDICATOR

P. H. King (GE)

Aug. 1972

HQ-10582

Device will provide visual indication of concentration of carbon dioxide. It consists of small amounts of absorbent material contained in semipermeable membrane and device to detect color changes. Material will absorb quantity of carbon dioxide proportional to carbon dioxide concentration in atmosphere. Amount of absorption is indicated by color change.

B72-10531

SENSOR CAPSULE FOR DIAGNOSIS OF GASTRIC DISORDERS

J. T. Holen (McDonnell-Douglas Corp.)

Aug. 1972

HQ-10767

Motility and pH sensor capsule is developed to monitor gastric acidity, pressure, and temperature. Capsule does not interfere with digestion. Sensor is capsule which includes pH electrode, Pitran pressure transducer, and thermistor temperature sensor all potted in epoxy and enclosed in high density polyethylene sheath.

B72-10533

PATIENT'S BREATH CONTROLS COMFORT DEVICES

M. Schrader (Southwest Res. Inst.), B. Carpenter (Southwest Res. Inst.), and C. D. Nichols

Sep. 1972

LANGLEY-11138

Patient assist system for totally disabled persons was developed which permits a person, so paralyzed as to be unable to move, to activate by breathing, a call system to summon assistance, turn the page of a book, adjust his bed, or do any one of a number of other things. System consists of patient assist control and breath actuated switch.

B72-10547

STERILE CHAMBER OPERATION WITH BIO-ISOLATOR SUIT SYSTEM

R. M. Hueschen

Sep. 1972

LANGLEY-11054

Development and characteristics of protective suit to permit man to operate in biologically sterile environment are described. Construction of tunnel, flexible seals, and cooling system are analyzed. Illustration of isolation suit is provided.

B72-10557

METERED OXYGEN SUPPLY AIDS TREATMENT OF DOMESTIC SEWAGE

N. Weliky (TRW Systems Group), T. J. Hooper (TRW Systems Group), and H. P. Silverman (TRW Systems Group)

Sep. 1972 see also NASA-CR-73033

ARC-10024

Microbiological fixed-bed process was developed in which supplementary oxygen required by microbial species is supplied by electrochemical device. Rate of addition of oxygen to waste treatment process is controlled to maintain aerobic metabolism and prevent anaerobic metabolisms which produce odorous or toxic products.

B72-10559

A THERMOCOUPLE THERMODE FOR SMALL ANIMALS

B. A. Williams

Sep. 1972

ARC-10550

Thermode composed of two thin-walled stainless steel hypodermic needles and copper-constantan thermocouple or small thermistor to indicate temperature at point of perfusion is used to measure brain temperature in animals. Because of relatively small size of thermode, structural damage to brain is minimized.

B72-10579

LOUDNESS (ANNOYANCE) PREDICTION PROCEDURE FOR STEADY SOUNDS

W. L. Howes and E. A. LaSalvia

Oct. 1972 See also NASA-TM-X-2300

LEWIS-11761

Method has been devised to predict loudness level of any steady sound solely from its measured power spectrum level. Method is based on assumption that, with respect to loudness sensation, the human auditory system acts as open-loop transmission system with transmittance function determined from measured tone curves.

B72-10588

TECHNICAL MANAGEMENT TECHNIQUES FOR IDENTIFICATION AND CONTROL OF INDUSTRIAL SAFETY AND POLLUTION HAZARDS

R. Campbell, M. K. Dyer, E. G. Hoard, D. G. Little, and A. C. Taylor

Dec. 1972 See also NASA-TM-X-2567

M-FS-21883

Constructive recommendations are suggested for pollution problems from offshore energy resources industries on outer continental shelf. Technical management techniques for pollution identification and control offer possible applications to space engineering and management.

B72-10617

Dc MOTOR PROPORTIONAL CONTROL SYSTEM FOR ORTHOTIC DEVICES

H. T. Blaise and J. R. Allen (Rancho Los Amigos Hosp.)

Oct. 1972

M-FS-21573

Multi-channel proportional control system for operation of dc motors for use with externally-powered orthotic arm braces is described. Components of circuitry and principles of operation are described. Schematic diagram of control circuit is provided.

B72-10630

TISSUE HOLDER FOR EXPERIMENTAL AND DEMONSTRATION SURGERY

F. J. Kuchta, J. B. Pavlik, D. J. Vargo, and G. R. Winters

Nov. 1972

LEWIS-11755

Development of device for holding anatomical tissues during operations is discussed. Device consists of plastic dish with hemispherical recess in center to hold excised eyes. Low vacuum applied to underside of recess insures holding of part.

B72-10632

A SYSTEM FOR AUTOMATIC ANALYSIS OF BLOOD PRESSURE DATA FOR DIGITAL COMPUTER ENTRY

R. L. Miller

Nov. 1972 See also NASA-TM-X-2519

LEWIS-11751

Operation of automatic blood pressure data system is described. Analog blood pressure signal is analyzed by three separate circuits, systolic, diastolic, and cycle defect. Digital computer output is displayed on teletype paper tape punch and video screen. Illustration of system is included.

B72-10637

AUTOMATIC AGAR TRAY INOCULATION DEVICE

J. R. Wilkins and S. M. Mills

Oct. 1972

LANGLEY-11074

Automatic agar tray inoculation device is simple in design and foolproof in operation. It employs either conventional inoculating loop or cotton swab for uniform inoculation of agar

media, and it allows technician to carry on with other activities while tray is being inoculated.

B72-10641
QUICK-DONNING BACKPACK HARNESS

D. F. Thomas, Jr.
Dec. 1972

LANGLEY-10102

Harness device permits user to quickly put on or take off load carried in backpack arrangement. It can be attached with one hand; has controlled deformation belt that automatically encircles user upon application of pressure; has rigid shoulder harness elements which move automatically into place; and primary attachment components that cannot be displaced while harness is in place.

B72-10642
IMPROVED BIOMEDICAL ELECTRODE

J. D. Frost, Jr. (Baylor Univ.)

Oct. 1972

MSC-13648

Newly designed electrode is prefilled, disposable, electrolyte-saturated sponge. New design permits long periods of storage without deterioration, and readiness in matter of seconds. Electrodes supply signals for electroencephalogram, electro-oculogram, and electrocardiogram.

B72-10652
SPEECH THERAPY AND VOICE RECOGNITION INSTRUMENT

J. Cohen (Ill. Univ.) and M. L. Babcock (Ill. Univ.)

Oct. 1972

HQ-10628

Characteristics of electronic circuit for examining variations in vocal excitation for diagnostic purposes and in speech recognition for determining voice patterns and pitch changes are described. Operation of the circuit is discussed and circuit diagram is provided.

B72-10653
A PROCESS YIELDS LARGE QUANTITIES OF PURE RIBOSOME SUBUNITS

M. Friedman (MIT), P. Lu (MIT), and A. Rich (MIT)

Oct. 1972

HQ-10662

Development of process for in-vitro protein synthesis from living cells followed by dissociation of ribosomes into subunits is discussed. Process depends on dialysis or use of chelating agents. Operation of process and advantages over previous methods are outlined.

B72-10657
BREATHING-METABOLIC SIMULATOR

R. G. Bartlett (IBM), C. M. Hendricks (IBM), and W. B. Morison (IBM)

Oct. 1972 See also B72-10658; B72-10659; B72-10660;

B72-10661

HQ-10766

Breathing-metabolic simulator was developed to be used for evaluation of life support equipment. Apparatus simulates human breathing rate and controls temperature and humidity of exhaled air as well as its chemical composition. All functions are designed to correspond to various degrees of human response.

B72-10658
METABOLIC SIMULATION CHAMBER

R. G. Bartlett (IBM) and C. M. Hendricks (IBM)

Oct. 1972 See also B72-10657; B72-10659; B72-10660;

B72-10661

HQ-10776

Metabolic simulation combustion chamber was developed as subsystem for breathing metabolic simulator. Entire system is used for evaluation of life support and resuscitation equipment. Metabolism subsystem simulates a human by consuming oxygen and producing carbon dioxide. Basic function is to simulate human metabolic range from rest to hard work.

B72-10659

DRIVE MECHANISM FOR PRODUCTION OF SIMULATED HUMAN BREATH

R. G. Bartlett (IBM), C. M. Hendricks (IBM), J. W. Lambert (IBM), and W. B. Morison (IBM)

Dec. 1972 See also B72-10657; B72-10658; B72-10660;

B72-10661

HQ-10777

Simulated breath drive mechanism was developed as subsystem to breathing metabolic simulator. Mechanism reproduces complete range of human breath rate, breath depth, and breath waveform, as well as independently controlled functional residual capacity. Mechanism was found capable of simulating various individual human breathing characteristics without any changes of parts.

B72-10660
TEMPERATURE AND HUMIDITY CONTROL OF SIMULATED HUMAN BREATH

R. G. Bartlett (IBM) and C. M. Hendricks (IBM)

Dec. 1972 See also B72-10657; B72-10658; B72-10659;

B72-10661

HQ-10778

Subsystem was developed for breathing metabolic simulator which adjusts temperature and humidity of air to levels of human exhaled breath. Temperature-humidity subsystem is described, consisting of aluminum enclosure with 400 watt heat sheet glued to bottom, vertical separators, inlet connection, and check valve.

B72-10661
SIMULATED BREATH WAVEFORM CONTROL

R. G. Bartlett (IBM), C. M. Hendricks (IBM), and W. B. Morison (IBM)

Dec. 1972 See also B72-10657; B72-10658; B72-10659;

B72-10660

HQ-10779

Subsystem was developed which provides twelve waveform controls to breath drive mechanism. Twelve position, magnetically actuated rotary switch is connected to one end of crankshaft drive, such that it makes one complete revolution for each simulated breath. Connections with common wired point are included in modifications made to standard motor speed controller.

B72-10690
AN EFFICIENT PREBREATHING APPARATUS FOR HUMANS DURING DECOMPRESSION

J. R. Jaax and G. P. Mills (United Aircraft Corp.)

Dec. 1972

MSC-14151

Portable prebreathing system was developed which recirculates and reconditions respiratorily exhaled oxygen. Apparatus reduces fire hazards, simplifies prebreathing procedures, and does not require extensive enclosure venting system usage.

B72-10695
IMPROVED ULTRASONIC BIOMEDICAL MEASURING APPARATUS

R. D. Lee

Dec. 1972

ARC-10597

Device for making measurements of organs in living specimens and recording movements of organs is described. System uses series of ultrasonic pulses beamed into body of animal. Reflected echo pulses are picked up by transducers and recorded. Diagram of equipment required and method of application is included.

B72-10698
IMPROVED ELECTRODES FOR SKIN CONTACTS

J. G. Castle (Ala. Univ.) and R. R. Lattanzi (Ala. Univ.)

Dec. 1972

M-FS-21926

Design is described of thick, flexible electrodes with appropriate metal surfaces which prevent unnecessary skin motion. Electrodes provide sufficient radial pressure directed toward body

05 LIFE SCIENCES

surface to depress skin a noticeable portion of its normal resilient thickness.

B72-10708

IMPLANTABLE DRUG THERAPY DEVICE: A CONCEPT

C. Feldstein

Dec. 1972

NPO-11934

Design is described of small, rechargeable, implantable infusor which contains fluid medicament stored under pressure and which dispenses fluid continuously through catheter. Body of infusor is covered by pliable silicone rubber sheath attached to suture pad for securing device.

B72-10730

IMPROVED MEASUREMENT OF DEPTH PERCEPTION

R. C. Fitch and D. D. Miller (Technol. Inc.)

Dec. 1972

M-FS-14133

Electromechanical system for Howard-Dolman device was developed. System is used for human depth perception measurements without tactual stimuli.

B72-10732

EFFECT OF THE METHOD OF PROCESS ON THE CONTROL

OF MICROBIAL GROWTH BY WATER ACTIVITY IN FOODS

T. P. Labuzu (MIT)

Dec. 1972

MSC-14234

Two methods for preparation of intermediate moisture foods (IMF) were investigated: water absorption and water desorption technique. Results indicate that shelf stability of IMP systems might be enhanced by preparing foods by rehumidifying dehydrated foods to optimum water activity rather than drying food to reduce the water activity.

B72-10756

AUTOMATED ANALYSIS OF BLOOD PRESSURE MEASUREMENTS (KOROTKOV SOUND)

D. P. Golden (Technol., Inc.), G. W. Hoffer, and R. A. Wolthuis (Technol., Inc.)

Dec. 1972

MSC-13999

Automatic system for noninvasive measurements of arterial blood pressure is described. System uses Korotkov sound processor logic ratios to identify Korotkov sounds. Schematic diagram of system is provided to show components and method of operation.

06 MECHANICS

B72-10009

ELECTRODYNAMIC ACTUATORS FOR ROCKET ENGINE VALVES

O. Fiet (TRW Systems Group) and D. Doshi (TRW Systems Group)

1972

ARC-10486

Actuators, employed in acoustic loudspeakers, operate liquid rocket engine valves by replacing light paper cones with flexible metal diaphragms. Comparative analysis indicates better response time than solenoid actuators, and improved service life and reliability.

B72-10010

GYRO SPRING AUGMENTATION SYSTEM

H. D. Danielson (Lockheed-Calif. Co.) and A. W. Brandstetter (Lockheed-Calif. Co.)

1972

ARC-10496

Spring-loaded piston with provision for hydraulic control of spring action varies the stiffness of hydraulic control systems.

B72-10011

FERROMAGNETIC-FLUID LOGIC DEVICES

M. J. Makowski (TRW Systems Group) and C. Mangion (TRW Systems Group)

1972

ARC-10503

Logic element switches flows of low pressure process control

fluid in fluidics assemblies. Device operates both electrically and fluidically and is controlled by passing permanent magnet or electromagnet over elements, thus providing proximity switching functions.

B72-10012

CAVITATING VENTURI SUMP

C. Mangion (TRW Systems Group)

1972 See also NASA-CR-86435

ARC-10504

By ducting spent fluid into a cavitating Venturi sump formed in a main stream of propellant, hazardous working fluid of fluidic systems on board spacecraft or rockets is vented harmlessly.

B72-10013

HERMETIC ISOLATION VALVES

M. J. Makowski (TRW Systems Group) and C. Mangion (TRW Systems Group)

1972

ARC-10505

Mechanism consists of thermal actuator, which expands when flow is desired, forcing cutter poppet through a diaphragm seal. Design concept is useful in systems that are stored for long periods of time before operation.

B72-10022

WIND TUNNEL BUFFET LOAD MEASURING TECHNIQUE

C. S. Chang (Lockheed Missiles and Space Co.) and A. M. Ellison (Lockheed Missiles and Space Co.)

1972

ARC-10495

Indirect force measurement technique estimates unsteady forces acting on elastic model during wind tunnel tests. Measurement of forces is practically insensitive to errors in aeroelastic scaling between model and full-scale structure, simplifying design, fabrication and dynamic calibration.

B72-10024

ZERO-LEAKAGE VALVES

R. J. Salvinski (TRW Systems Group)

1972

ARC-10506

Valve action confines polymeric material in a metal groove effecting seal by compressive reaction of the polymer. As cold flow does not occur, sealing material resiliency is preserved over numerous operations.

B72-10037

SOLENOID-OPERATED SWING-CHECK VALVE

P. D. Quattrone and R. H. Meacham

1972

XAC-10048

Modification of spring-loaded swing-check valve for solenoid operation provides low-vacuum swing-check valve which can be operated remotely.

B72-10040

REDUCTION OF FAN NOISE: A CONCEPT

M. R. Simonson (GE)

1972

ARC-10312

Acoustic materials strategically located within or near noise sources are effective for noise abatement on wing mounted lift fans, nozzles, engines and other noise sources. Panels are straightforward and easily adaptable to situations outside of aircraft technology.

B72-10049

PRESSURE SENSITIVE GAS FLOW METER

C. E. Hallum (Philco-Ford Corp.)

1972 See also NASA-CR-73231

ARC-10219

Regulator, which increases flow area in discrete steps as upstream pressure falls, maintains steady flow rate of gas as the supply pressure from storage system decreases.

B72-10075

GRAPH FOR LOCKED ROTOR CURRENT

R. R. Peck (N. Am. Rockwell Corp.)

1972

MSC-15703

Graph determines effect of stalled motor on a distribution system and eliminates hand calculation of amperage in emergencies. Graph is useful to any manufacturer, contractor, or maintenance department involved in electrical technology.

B72-10078**CONTINUOUS-FLOW VARIABLE-DENSITY WIND TUNNEL FACILITIES**

J. G. Herrera

1972

NPO-11287

Unique features of wind tunnel facilities at Jet Propulsion Laboratory permit variety of conventional and novel tests to be performed at supersonic and hypersonic speeds. Facilities and operations are described.

B72-10084**OPTIMIZED BRAKING OF LANDING VEHICLES WITH ATMOSPHERIC DRAG**

A. K. Bejczy

1972

NPO-11402

Decelerating effect of atmospheric drag assures minimum fuel consumption and time expenditure during braking for soft landing.

B72-10093**COMPENSATING SUBREFLECTOR FOR TWO-REFLECTOR ANTENNAS: A CONCEPT**

D. A. Bathker, M. S. Katow, and P. D. Potter

1972

NPO-11503

Segmented subreflector surface of Cassegrainian antenna is distorted and shaped by mechanical means to compensate for loss of figure in main reflector. Number of segments necessary is determined by gravity distortion pattern of main reflector at zenith and at horizon.

B72-10097**SQUIB-ACTUATED DISCONNECT DEVICE**

D. P. Davis

1972

NPO-11544

Piston-operated device retains gases released by explosive squibs during stage separation of a spacecraft.

B72-10104**REMOVAL OF FILLER MATERIAL FROM LARGE HIGH ENERGY FORMED PARTS**

D. E. Krantz (N. Am. Rockwell Corp.), G. W. Wine (N. Am. Rockwell Corp.), and J. S. Corral (N. Am. Rockwell Corp.)

1972

M-FS-16326

Filler material is removed by applying steam heat at 88.99 C to underside of workpiece and allowing filler to melt and drain from the waffle grids.

B72-10105**MICRORESONATOR FOR DAMPING FLOW OSCILLATIONS**

E. Bramblett (Rocketdyne)

May 1972

M-FS-18401

Resonant spring-mass system detunes flow oscillations of pump's inlet line to prevent structural damage in fluidic system.

B72-10121**MICRO REGULATING BALL VALVE**

J. W. Hawkins

1972

ARC-10295

Ball valve of simple, rugged configuration overcomes leakage because there are no critical wear areas. Design has stable and precise calibration. Device can be assembled or disassembled in seconds and needs no lubrication.

B72-10133**POSITIVE FAST SEALING UNION CONNECTIONS**

C. M. Kleber

Dec. 1972

LEWIS-11290

Union connections are designed for connecting high pressure flexible hoses from gas storage manifolds to gas transport trailers. Connection uses O ring seals which can be quickly assembled and disassembled without use of wrenches; and which do not twist hose. Worn or damaged O rings are easily replaced.

B72-10135**BOILER FOR GENERATING HIGH QUALITY VAPOR**

V. H. Gray, P. J. Marto, and A. W. Joslyn

May 1972 See also NASA-TN-D-4136; NASA-TN-D-6307

LEWIS-11345

Boiler supplies vapor for use in turbines by imparting a high angular velocity to the liquid annulus in heated rotating drum. Drum boiler provides a sharp interface between boiling liquid and vapor, thereby inhibiting the formation of unwanted liquid droplets.

B72-10158**FLUIDIC IGNITION DETECTION**

C. S. Henry (Aerojet Liquid Rocket Co.)

Jul. 1952.

M-FS-21498

Ignition sensor, utilizing fluidic oscillator device and its ability to react to flow system's molecular weight and temperature changes, detects propellant ignition. Commercial applications include fields of fire protection equipment and fluidics.

B72-10162**FLUIDIC PRESSURE REGULATORS**

C. Mangion (TRW Systems Group) and W. Miller (TRW Systems Group)

1972

ARC-10474

Three basic areas for possible application of fluidic control to rocket engine subsystems were identified and six subsystem configurations were analyzed for study. Results provide indication of tradeoffs involved between conventional and fluidic regulators and should be of interest to control and applications engineers who need to make similar analyses.

B72-10163**CLOSED-CYCLE POWER SUPPLY FOR FLUIDIC CONTROL SYSTEMS**

O. Fiet (TRW System Group) and C. Mangion (TRW Systems Group)

1972

ARC-10480

Power supply utilizes small quantities of two-phase fluid of suitable thermodynamic properties for circulation in a capillary-pumped heat transfer loop. Fluid is vaporized in evaporator, passed through fluidic system load, condensed, pumped by multistage capillary pump, and returned to the evaporator.

B72-10183**ANGULAR VELOCITY AND ACCELERATION METER**

L. Melamed

May 1972

LEWIS-11466

Meter uses a liquid crystalline film which changes coloration due to shear-stresses produced by a rotating disk. Device is advantageous in that it is not subject to bearing failure or electrical burnouts as are conventional devices.

B72-10204**A PIEZOELECTRICALLY ACTUATED BALL VALVE**

L. R. Erwin (Bendix Corp.), H. W. Schwartz (Bendix Corp.), and B. R. Teitelbaum (Bendix Corp.)

May 1972

ARC-10338

Bimorph strip composed of two layers of poled piezoelectric ceramic material closes and opens valve. Strip performs like

06 MECHANICS

capacitor, allowing initial inrush of current when valve is energized and then only small leakage current flows as valve remains energized.

B72-10210

TWO-STAGE COAXIAL GAS COMPRESSOR

W. S. Wang (TRW Systems Group), H. W. Wright, Jr. (TRW Systems Group), and S. Huniu (TRW Systems Group)
May 1972

ARC-10426

Compressor raises pressure of gases from low ambient supply during space experiments by a system of low weight, size, and power input. Dc rotary-torque motor and ball-screw drive shaft activate first and second stage of compressor, utilizing inertia forces to operate check valves.

B72-10213

INTEGRATED FLIGHT CONTROLLER FOR LIGHT AIRCRAFT

J. W. Olcott (Aeron. Res. Associates of Princeton, Inc.), D. R. Ellis (Aeron. Res. Associates of Princeton, Inc.), and E. Seckel (Aeron. Res. Associates of Princeton, Inc.)

May 1972

ARC-10456

Controller-throttle engages spoiler/dive brake system when throttle setting is below a fixed power setting and gradually increases effect of spoiler/dive brake as throttle is moved toward idle position; since action is automatically reversible, a sudden application of power abruptly terminates aerodynamic effects of spoiler/dive brake system.

B72-10228

SIMPLE, REPRODUCIBLE METHODS FOR THERMAL SHOCK TESTING OF BRITTLE MATERIALS

J. C. Rowley and C. R. King

May 1972

NUC-11020

Technique requires radio frequency induction power source, induction furnace and good vacuum system to induce brittle material thermal shock testing.

B72-10239

ENERGY ABSORBER USES EXPANDED COILED TUBE

E. F. Johnson

Dec. 1972

AEC-10044

Mechanical shock mitigating device, based on working material to its failure point, absorbs mechanical energy by bending or twisting tubing. It functions under axial or tangential loading, has no rebound, is area independent, and is easy and inexpensive to build.

B72-10241

FERROFLUIDIC SOLENOID WITH AXIAL AND RADIAL DISPLACEMENT

E. E. Sabelman

Aug. 1972

NPO-11738

New design is proposed for ferrofluidic solenoid with low magnetic flux leakage. Solenoid consists of a coil centered within a football-shaped elastomeric capsule filled with a ferromagnetic fluid. Fluid replaces the solid, movable core of conventional solenoids, and elastomeric capsule acts as return spring.

B72-10250

FLUIDIC SYSTEMS MAY IMPROVE COMBUSTION IN AUTOMOTIVE ENGINES

C. Mangion (TRW Systems Group)

Sep. 1972

ARC-10582

Application of fluidic devices to reduce generation of noxious exhausts from internal combustion engines is discussed. Operation of fluidic system to provide bypass of fuel air mixture into heated loop to provide more complete combustion is explained. Advantage lies in no moving parts required for fluidic by-pass action.

B72-10258

REPEATABLE METHOD OF THERMAL STRESS FRACTURE TEST OF BRITTLE MATERIALS

J. C. Rowley, R. W. Andrae, and A. E. Carden

Jun. 1972

NUC-11019

Method heats specimens slowly and with sufficient control so that the critical temperature gradient in the specimens cannot occur before temperature equilibrium is reached.

B72-10289

FLOW EQUATION FOR POROUS PLUG AND CAPILLARY TUBE FLOW RESTRICTORS

W. S. Davis (Avco Corp.)

Jun. 1972

GSFC-11387

Development of flow measuring apparatus for determining low flow performance of resistojet thruster is discussed. Diagram of test equipment is presented. Operation of test equipment is described and numerical relationships are explained.

B72-10323

ISOGRID STRUCTURE

R. R. Meyer (McDonnell-Douglas Corp.)

Jul. 1972

M-FS-21567

Isotropic rib stiffened shell whose ribs intersect to form equilateral triangles has advantages of high twisting rigidity of construction and simplicity of triangular pattern.

B72-10330

LIQUID METHANE GELLED WITH METHANOL AND WATER REDUCES RATE OF NITROGEN ABSORPTION

E. M. Vanderwall (Aerojet Liquid Rocket Co.)

Jul. 1972 See also NASA-CR-72876

LEWIS-11574

Dilution of gelant vapor with inert carrier gas accomplishes gelation. Mixture is injected through heated tube and orifice into liquid methane for immediate condensation within bulk of liquid. Direct dispersion of particles in liquid avoids condensation on walls of vessel and eliminates additional mixing.

B72-10331

SMALL TURBINE-TYPE FLOWMETERS FOR LIQUID HYDROGEN

I. Warshawsky, H. F. Hobart, and H. L. Minkin

Jul. 1972 See also NASA-TM-X-52984

LEWIS-11535

Characteristics of turbine-type flowmeters in two sizes and with various types of bearings are presented. Calibration procedures of instruments are described. Accuracies obtainable under various conditions are analyzed.

B72-10338

PORTABLE ELECTRON BEAM WELD CHAMBER

J. R. Lewis (N. Am. Rockwell Corp.) and J. M. Dimino (N. Am. Rockwell Corp.)

Sep. 1972

MSC-17738

Development and characteristics of portable vacuum chamber for skate type electron beam welding are discussed. Construction and operational details of equipment are presented. Illustrations of equipment are provided.

B72-10380

EXPANDABLE COATING COCOON LEAK DETECTION SYSTEM

R. L. Hauser (Hauser Labs.) and M. C. Kochansky (Hauser Labs.)

Jul. 1972

M-FS-21848

Development of system and materials for detecting leaks in cocoon protective coatings is discussed. Method of applying materials for leak determination is presented. Pressurization of system following application of materials will cause formation of bubble if leak exists.

B72-10381**LEAK DECAY METHOD OF HELIUM BOMBARDMENT LEAK TESTING**

W. P. Garton (N. Am. Rockwell Corp.)

Jul. 1972

M-FS-24109

Method for verifying hermetic seal quality of small components is described. Procedure for using helium bombardment and examination with mass spectrometer is described. Technique eliminates errors in seal quality determination and checks quality of seals without contaminating products.

B72-10399**IMPROVEMENTS OF ZEYDED METHOD FOR CALCULATING FLUTTER OF FLAT PANELS**

J. E. Yates (Aeron. Res. Associates of Princeton, Inc.)

Jul. 1972

M-FS-20955

Method for calculating flutter boundaries and estimating stresses in infinite spanwise array of panels is presented. Numerical analyses are included for pinned edge panels, isotropic panel material, zero viscous damping, and no elastic foundation. Design flutter boundaries are presented for aluminum panels on Saturn spacecraft trajectory.

B72-10403**NONSTEADY FLOW-DIRECTION MEASUREMENT**

L. N. Krause and R. L. Summers

Jul. 1972 See also NASA-TM-X-52962

LEWIS-11499

Nonsteady flow probe uses miniature pressure transducers mounted within probe support very close to tube inlets. Response speed depends on internal volume between tube inlet and pressure transducer location.

B72-10407**PREDICTION OF FLOW-INDUCED FAILURES OF BRAIDED FLEXIBLE HOSES AND BELLOWES**

L. E. Sack (N. Am. Rockwell Corp.), R. L. Nelson (N. Am. Rockwell Corp.), D. R. Mason (N. Am. Rockwell Corp.), and R. A. Cooper (N. Am. Rockwell Corp.)

Jul. 1972

M-FS-19004

Analytical techniques were developed to evaluate braided hoses and bellows for possibility of flow induced resonance. These techniques determine likelihood of high cycle fatigue failure when such resonance exists.

B72-10408**TURBOPUMP THERMODYNAMIC COOLING**

T. C. Patten (McDonnell-Douglas Corp.) and H. B. McKee (McDonnell-Douglas Corp.)

Jul. 1972

M-FS-21597

System for cooling turbopumps used in cryogenic fluid storage facilities is described. Technique uses thermodynamic propellant vent to intercept pump heat at desired conditions. Cooling system uses hydrogen from outside source or residual hydrogen from cryogenic storage tank.

B72-10436**RIGHT ANGLE MOUNTED COLD TRAP**

R. J. Ugiansky

Jul. 1972

GSFC-11323

Vacuum system for calibrating, aligning, and evaluating solar research instruments is described. Equipment consists of right-angle mounted cold trap connected to side pumping vacuum system. Operation of test facility and conditions obtainable in test chamber are discussed.

B72-10437**INVESTIGATIONS OF A TURBULENT JET IN A CROSSFLOW**

Y. Kamotani (Case Western Reserve Univ.) and I. Greber (Case Western Reserve Univ.)

Jul. 1972 See also NASA-CR-72893

LEWIS-11680

Analyses of flow field downstream of jet directed at right angles into crossflow for heated and unheated single jets are presented. Application of flow data to cooling system for gas turbine combustion chambers is discussed. Temperature distribution, velocity trajectory, and vortex motion are described.

B72-10441**MULTIPLE REACTION MASS AND ISOLATION SYSTEM**

N. F. Jacobson (N. Am. Rockwell Corp.)

Jul. 1972

M-FS-24119

System allows measurement of damping and stiffness with the desired uncoupling of measurement fixture and permits testing of large structures without need for costly foundation or base. System is designed to permit horizontal loading to be conveniently superimposed on vibratory loads.

B72-10446**COMBINATION PRESSURE REGULATOR AND SAFETY VALVE: A CONCEPT**

R. L. Acres (Serv. Technol. Corp.)

Jul. 1972

MSC-14088

Device for regulating high pressure liquefied gas to high pressure vapor generator using liquid oxygen is described. System includes pressure regulation and safety valve features. Construction of the equipment and method of operation are presented.

B72-10466**CONSTANT TENSION DEVICE FOR GRAVITY SIMULATION**

W. F. Orłowski (Sperry Rand Corp.)

Aug. 1972

M-FS-21618

Mechanical device for simulating lunar gravitation is described. Details of construction are illustrated and example of application is provided. Device works opposite to effects of earth gravity and produces effects similar to lunar conditions by providing mechanical lifting forces.

B72-10476**IMPACT SENSITIVITY OF MATERIALS IN CONTACT WITH LIQUID AND GASEOUS OXYGEN AT HIGH PRESSURE**

R. J. Schwinghamer

Dec. 1972

M-FS-21930

Tests run at high pressure indicate that various polymer materials used show inverse relationship between thickness and impact sensitivity. Several materials tested exhibited greater impact sensitivity in gaseous oxygen than in liquid oxygen. Materials tested in gaseous oxygen showed enhanced impact sensitivity with higher pressure.

B72-10488**ANALYTICAL FAILURE DETERMINATION OF FLOW-INDUCED FATIGUE IN BELLOWES**

R. G. Cron (Rocketdyne)

Aug. 1972

M-FS-18178

Fatigue failure of bellows when subjected to passage of fluids at high speeds is discussed. It is assumed that flow through bellows generates sound in fluid and vibration caused by sound waves is principal contributor to failure. Effects of sound waves on bellows structure are analyzed.

B72-10489**IMPROVED HIGH-TEMPERATURE GIMBAL JOINT**

J. R. Winemiller, S. T. Yee, and B. H. Neal

Aug. 1972

LEWIS-11705

Development and characteristics of bellows gimbal joint for reduction of thermal stress effects are discussed. Reactions of designed joint to changes in temperature are described. Illustrations of conventional gimbal joint and improved gimbal joint are provided.

06 MECHANICS

B72-10490 AUTOMATIC AIR FLOW CONTROL IN AIR CONDITIONING DUCTS

H. D. Obler

Aug. 1972

GSFC-11445

Device is designed which automatically selects air flow coming from either of two directions and which can be adjusted to desired air volume on either side. Device uses one movable and two fixed scoops which control air flow and air volume.

B72-10494

A SYSTEM FOR EARLY WARNING OF BEARING FAILURE
J. J. Broderick (Mech. Technol., Inc.), R. F. Burchill (Mech. Technol., Inc.), and H. L. Clark (Mech. Technol., Inc.)

Aug. 1972

M-FS-21877

System for detecting incipient failure in ball bearings is described. Ultrasonic equipment detects bearing system resonance and provides warning signal through electronic circuitry. Detector can be used to evaluate performance of newly installed bearings. Schematic diagram is provided to show components.

B72-10496

**DRY ICE PLUG FOR HYDRAULIC AND PNEUMATIC PIPE
FLUSHING**

L. Francino (Grumman Aerospace Corp.) and S. Rauch (Grumman Aerospace Corp.)

Aug. 1972

MSC-12548

Development of technique to clear blockages in hydraulic and pneumatic pipes is discussed. Technique consists of using dry ice plug to separate sensitive components from flushing fluid. Diagram of equipment and principles of operation are presented.

B72-10502

INTEGRATED MONOPROPELLANT THRUSTER

C. Mangion (TRW Systems Group)

Aug. 1972

NPO-12004

Application of vortex amplifier principles to throttling of monopropellant thrusters is described. Integration of flow control, catalyst bed, and thruster nozzle is accomplished by design of thruster. Diagrams of thrusters are provided to show details of construction and operation.

B72-10540

**IMPROVED SAMPLING OF COMPRESSED GASES FOR
CONDENSABLE HYDROCARBON CONTENT**

M. H. Peterson (Bendix Corp.) and E. W. Fickey (Bendix Corp.)

Sep. 1972

KSC-10304

Sampling process was developed which uses commercially available high pressure filters and provides measurements in fraction of time required by older methods. Measurements show no significant difference in results between low pressure and high pressure samples. Filter method is slightly more accurate than scrubber technique.

B72-10543

**A STAGNATION PRESSURE PROBE FOR USE IN SUPER-
SONIC FLOW**

M. J. Goodyer

Sep. 1972

LANGLEY-11139

Probe was developed which is capable of recording true stagnation pressure in supersonic and subsonic flows. Static pressure orifices in the compression surface allow probe to be used as combined flow direction and stagnation pressure sensor.

B72-10546

**PROBE MEASURES GAS AND LIQUID MASS FLUX IN HIGH
MASS FLOW RATIO TWO-PHASE FLOWS**

R. J. Burick (N. Am. Rockwell Corp.)

Sep. 1972 See also NASA-CR-120819

LEWIS-11270

Deceleration probe constructed of two concentric tubes with separator inlet operates successfully in flow fields where ratio of droplet flow rate to gas flow rate ranges from 1.0 to 20, and eliminates problems of local flow field disturbances and flooding. Probe is effective tool for characterization of liquid droplet/gas spray fields.

B72-10552

MICRO-SCALE CREASE-AND-FOLD APPARATUS

R. F. Muraca (Stanford Res. Inst.) and J. Neff (Stanford Res. Inst.)

Oct. 1972

NPO-12029

Crease and fold resistance of polymeric films and test equipment for determining mechanical properties is discussed. Components of equipment and method of operation are described. Illustration of test device is provided.

B72-10558

RESTRAINT AND LOCOMOTION AID

H. C. Vykukal

Sep. 1972

ARC-10153

Design of system to permit human performance in conditions where gravity and friction forces cannot act as counterforces is described. Application of system to performance of work in space is discussed. Diagram is provided to show construction and operation of equipment.

B72-10576

LEAK TEST SYSTEM

R. G. Morris (McDonnell-Douglas Corp.) and A. L. Rose (McDonnell-Douglas Corp.)

Sep. 1972

M-FS-21788

System for quantitative determination of leak rates in large pressurized compartments is described. Method uses pressure reference cylinder placed in thermal contact with internal environment of compartment. Construction of equipment and details of operational procedure are reported. Illustration of equipment is included.

B72-10581

IMPROVED SILVER-ZINC BATTERY-TERMINAL SEALS

W. E. Snider, D. W. Medwid, and W. J. Nagle

Sep. 1972 See also NASA-TM-X-68067

LEWIS-11615

Development of battery terminal seal for sealing electrolyte for periods of three to five years is discussed. Operating conditions of battery are defined. Components of electrolyte seal and method of production are reported. Schematic diagrams of device are included.

B72-10590

HIGH PRESSURE LIQUID GAS PUMP

R. L. Acres (Serv. Technol. Corp.)

Sep. 1972

MSC-14087

Design and development of two types of pumps for handling liquefied gases are discussed. One pump uses mechanical valve shift and other uses pneumatic valve shift. Illustrations of pumps are provided and detailed description of operation is included.

B72-10598

**THERMAL INDUCED FLOW OSCILLATIONS IN HEAT
EXCHANGERS FOR SUPERCRITICAL FLUIDS**

J. C. Friedly (GE), J. L. Manganaro (GE), and P. G. Krueger (GE)

Sep. 1972

M-FS-21262

Analytical model has been developed to predict possible unstable behavior in supercritical heat exchangers. From complete model, greatly simplified stability criterion is derived. As result of this criterion, stability of heat exchanger system can be predicted in advance.

B72-10603
RESPONSE OF A PANEL STRUCTURE TO REVERBERANT ACOUSTIC EXCITATION

D. Cadin, Jr. (Lockheed Missiles and Space Co.)
 Dec. 1972

M-FS-21774

Investigation was made of methods for predicting response of panel structures to acoustic excitation. Computer program was generated to calculate response of panel to reverberant acoustic field, using normal mode approach developed for low frequency response. Program can be modified to handle other types of acoustic fields by changing spatial correlation calculation.

B72-10613
A FOUR-PANEL ENCLOSURE PROTECTS FROM EXPLOSION

P. V. King (GE)
 Oct. 1972

M-FS-21847

Development of multi-layered baffle as enclosure to protect personnel from effects of explosion during production of ammunition is discussed. Advantages of new system over previous systems are described. Illustration of typical panel structure is provided.

B72-10615
SOLAR POWERED ABSORPTION CYCLE HEAT PUMP USING PHASE CHANGE MATERIALS FOR ENERGY STORAGE

R. L. Middleton
 Oct. 1972

M-FS-21927

Solar powered heating and cooling system with possible application to residential homes is described. Operating principles of system are defined and illustration of typical energy storage and exchange system is provided.

B72-10626
INTERNAL CAPILLARY INSULATION FOR CRYOGENIC TANKS

J. L. McGrew (Martin Marietta Corp.)
 Nov. 1972

LEWIS-11234

Capillary-type insulation was devised for installation on inside of liquid methane fuel tanks for future aircraft. Insulation consists of honeycomb core of fiberglass cloth impregnated with polyimide resin which is bonded onto metal tank wall using polyimide adhesive. Capillary holes in each honeycomb cell admit methane which provides static pressure in cell.

B72-10631
USE OF SMALL TURBINE-TYPE FLOWMETERS TO MEASURE FLOW IN LARGE PIPES

H. L. Minkin and H. F. Hobart
 Nov. 1972

LEWIS-11851

Measurement of mass flow in large pipes using small turbine-type flowmeters is discussed. Experiments for determining accuracy of flowmeter and applicability to various types of flow measurement are reported. Illustration of turbine flowmeter and calibration curve are included.

B72-10636
LINEAR ACCELERATOR: A CONCEPT

J. Mutzberg (Boeing Co.)
 Oct. 1972

KSC-10618

Design is proposed for inexpensive accelerometer which would work by applying pressure to fluid during acceleration. Pressure is used to move shuttle, and shuttle movement is sensed and calibrated to give acceleration readings.

B72-10651
FREON 21 BEARING LUBRICATION AND COOLANT SYSTEM

E. J. Bodensieck (N. Am. Rockwell Corp.) and M. J. Gustafson

(N. Am. Rockwell Corp.)

Dec. 1972

HQ-10302

Lubrication and cooling of turbopump rotor bearings by liquid Freon 21 is reported. Freon expands in rotor bearing and acts as heat sink by removing heat during warming and evaporation. Gaseous Freon is removed by vacuum pump controlling rotor chamber operation.

B72-10663
AUTOMATIC WATER INVENTORY, COLLECTING, AND DISPENSING UNIT

J. B. Hall, Jr. and E. F. Williams
 Dec. 1972

LANGLEY-11071

Two cylindrical tanks with piston bladders and associated components for automatic filling and emptying use liquid inventory readout devices in control of water flow. Unit provides for adaptive water collection, storage, and dispensation in weightless environment.

B72-10669
SPRAG SOLENOID BRAKE

P. H. Dane
 Oct. 1972

M-FS-21846

Operation of solenoid braking mechanism is discussed. Illustrations of construction of the brake are provided. Device is used for braking low or medium speed shaft rotations and produces approximately ten times braking torque of similar solenoid brakes.

B72-10677
PROPELLANT FEED SYSTEMS TRANSIENTS

R. A. Shumway (N. Am. Rockwell Corp.) and G. R. Cox (N. Am. Rockwell Corp.)

Dec. 1972

MSC-17848

Program was written to assist in analysis of fluid feed line transients initiated by operation of valves. Program output consists of printout of transient pressures and velocities through feed system as function of time. Optional CRT plot output provides for display of transient pressures and velocities as function of time at any desired location in feed system.

B72-10679
A MONOSTRAIN TEST APPARATUS

J. C. Helf (N. Am. Rockwell Corp.), W. L. Hill (N. Am. Rockwell Corp.), and H. L. Pontius (N. Am. Rockwell Corp.)

Dec. 1972

M-FS-24221

Test apparatus is designed for determining tensile strength, modulus of elasticity, elongation, and thermal coefficient of contraction or expansion of uniformly shaped plastics, adhesives, and foam materials over temperature range of 700 to 90 K (800 to -300). Tests may be used in design quality control, and in evaluation of new adhesives and plastic materials.

B72-10686
AN OPTICAL QUALITY METER SUITABLE FOR CRYOGENIC LIQUIDS

H. F. Hobart and H. L. Minkin

Oct. 1972 See also B66-10394

LEWIS-11814

Construction of instrument to measure ratio of liquid to gas of flowing transparent cryogenic fluid is described. Instrument consists of collimated light source and photoconductive cell. Operation of instrument is described and illustration of equipment is provided.

B72-10689
NEW DETECTION METHOD FOR ROLLING ELEMENT AND BEARING DEFECTS

R. F. Burchill (Mech. Technol., Inc.) and J. L. Farey (Mech. Technol., Inc.)

Oct. 1972

M-FS-21911

06 MECHANICS

Instrument for detecting defects in rolling elements of bearings is described. Detection depends on rate at which rolling elements impact defect and establish envelope amplitude of ball resonant frequency. Block diagram of instrument is provided and results obtained in conducting tests are reported.

B72-10692

SEAT BELT RESTRAINT SYSTEM

A. Garavaglia and D. Matsuhira

Oct. 1972

ARC-10519

Shoulder-harness and lap-belt restraint system was designed to be worn by individuals of widely different sizes and to permit normal body motion except under sudden deceleration. System is divided into two basic assemblies, lap belt and torso or shoulder harness. Inertia-activated reels immediately lock when seat experiences sudden deceleration.

B72-10693

EJECTOR NOZZLE WITH MASSIVE BLOWING

H. C. True (Boeing Co.)

Oct. 1972

ARC-10621

Jet-flap, wing-blowing system for use in short takeoff and landing aircraft is described. System depends on ejector nozzle with large blowing capacity to direct ducted air against deflected flap. Operation of equipment during takeoff and cruise conditions is discussed. Diagrams of equipment are provided.

B72-10704

CONCENTRIC-SEATING POPPET

W. F. MacGlashan, Jr.

Oct. 1972

NPO-11658

Configuration of poppet valve with zero clearance sudden initial contact is described. Detailed description of valve operation is presented and diagram of components is illustrated.

B72-10712

ENERGY ABSORBING SYSTEM FOR MECHANICAL IMPACTS

E. R. Collins, Jr.

Dec. 1972

NPO-10671

System is described based on use of arrangement of crushable hollow spheres bonded together in layers of progressively different diameter, with largest diameter spheres positioned to receive impact forces initially. System is particularly useful for delivery of payloads by air-drop techniques.

B72-10713

SQUIB-OPERATED DISCONNECT

P. Alexander, Jr. and A. R. McDougal

Dec. 1972

NPO-11330

Disconnect device is described, which consists of stud with enlarged end held in collet locked by pins, which are held in place by piston. When squib is fired, trapped combustion products force piston to release pins.

B72-10714

TRIANGULAR WHEEL LOCOMOTION MECHANISM

E. Hryniewiecki (Comprehensive Designers, Inc.)

Dec. 1972

NPO-11366

Triangular wheel and suspension vehicle is described which can scale obstacle higher than its own length.

B72-10715

DESIGN CRITERIA MONOGRAPH ON SOLID ROCKET MOTOR IGNITERS

Innovator not given (Lewis Res. Center) Dec. 1972 See also NASA-SP-8051

LEWIS-11826

Summary of large and loosely organized body of existing

successful design techniques and practices for solid rocket motor igniters is presented.

B72-10716

A MULTIELEMENT PROBE FOR COINCIDENT TEMPERATURE AND PRESSURE MEASUREMENTS

G. E. Glawe, T. J. Dudzinski, and L. N. Krause

Dec. 1972 See also NASA-TM-X-2577

LEWIS-11775

Small, multielement probes are described which measure total pressure and temperature coincidentally at one or several points in gas stream.

B72-10722

OPTIMIZATION OF FLUID LINE SIZES WITH PUMPING POWER PENALTY IBM-360 COMPUTER PROGRAM

D. Jelinek (N. Am. Rockwell Corp.)

Dec. 1972

MSC-17930

Computer program has been developed to calculate and total weights for tubing, fluid in tubing, and weight of fuel cell power source necessary to power pump based on flow rate and pressure drop. Program can be used for fluid systems used in any type of aircraft, spacecraft, trucks, ships, refineries, and chemical processing plants.

B72-10723

THERMAL-POWERED RECIPROCATING PUMP

E. E. Sabelman

Dec. 1972

NPO-11417

Waste heat from radioisotope thermal generators in spacecraft is transported to keep instruments warm by two-cylinder reciprocating pump powered by energy from warm heat exchange fluid. Each cylinder has thermally nonconductive piston, heat exchange coil, and heat sink surface.

B72-10733

A PROPOSED REMOTE MANIPULATOR SYSTEM: A CONCEPT

S. Brodie (Martin Marietta Corp.), C. Flatau (Martin Marietta Corp.), and F. Greb (Martin Marietta Corp.)

Dec. 1972

MSC-14245

System is described with variable ratio, mixed mode, bilateral, master-slave control. Manipulator arms consist of shoulder and elbow with two degrees of freedom, a wrist with three degrees of freedom, and terminal grasping device. Feedback is provided by TV cameras attached near shoulder, grasping device, and at end of shuttle opposite arm.

B72-10738

EXPERIMENTAL STUDY OF FLOW DISTRIBUTION WITH CIRCUMFERENTIAL MANIFOLDS

R. T. Dittrich

Dec. 1972 See also NASA-TN-D-6697

LEWIS-11649

Water flow test results on fluid flow distribution and pressure loss in curved manifolds with tangential or radial entry are reported. Manifolds were studied both as inlet and outlet manifolds. Manifolds can be used for boilers and/or heat exchangers for advanced space electric power plants.

B72-10743

REDUCTION OF NOISE IN GYRO OUTPUTS

G. M. Kraus (Honeywell, Inc.) and J. G. Rupert (Honeywell, Inc.)

Dec. 1972

NPO-11603

Technique is described to reduce extraneous gyro output signals by using relatively inexpensive shrouds which do not increase power consumption. Shrouds reduce noise by minimizing mass of gas spinning with rotor, reducing Reynolds number near rotor, and inducing laminar flow.

B72-10748

FINAL REPORT ON A STUDY OF LOW-DENSITY NOZZLE

FLOWS, WITH APPLICATION TO MICROTHRUST ROCKETS

Innovator not given (Cornell Aeron. Lab., Inc.) Dec. 1972
HQ-10761

Method for predicting nozzle performance of microthrust rockets is discussed. Method is numerical and uses simplified computer program on IBM 360/65 computer. Analysis is based on slender channel equations with slip boundary conditions at walls. Implicit finite difference scheme is used to calculate pressure and velocity profiles along channel.

B72-10749

EFFECTS OF NONUNIFORM SWASH-PLATE STIFFNESS ON COUPLED BLADE-CONTROL SYSTEM DYNAMICS AND STABILITY

V. J. Piarulli (Rochester Appl. Sci. Associates, Inc.)
 Dec. 1972

LANGLEY-11068

Program has been developed that analytically determines effects of nonuniform swash-plate support stiffness, swash-plate flexibility, and out-of-blade track on vibratory mechanical stability characteristics of helicopter rotor systems. Analysis is based on combined Laplace transform and associated matrix approach.

07 MACHINERY, EQUIPMENT AND TOOLS

B72-10036

OPTICAL ALIGNMENT OF ELECTRODES ON ELECTRICAL DISCHARGE MACHINES

A. G. Boissevain and B. W. Nelson
 1972

XAC-09489

Shadowgraph system projects magnified image on screen so that alignment of small electrodes mounted on electrical discharge machines can be corrected and verified. Technique may be adapted to other machine tool equipment where physical contact cannot be made during inspection and access to tool limits conventional runout checking procedures.

B72-10066

POSITION INDICATING, ROTATING BOOM

A. C. Dibble, F. W. Gibson, J. R. Padelt, and W. S. Saunders
 Dec. 1972

LANGLEY-11202

Universal multiplanar position indicating, rotating boom for mounting various instruments or sensors is described. Boom is telescoping, and apparatus is capable of 3 types of rotation controlled by electric motors. Movement may be continuous or incremental.

B72-10095

TUBING CUTTER

A. Giandomenico
 1972

NPO-11524

Replacement of opposing smooth rollers with appropriately grooved rollers in manual tubing cutter allows smooth severance of tubing of different diameters and eliminates raised lip around cut end.

B72-10110

HYDRAULIC VALVE LIFTER REMOVER

R. F. Horton
 Jul. 1952

M-FS-21377

Threaded rod, mounted in tubular housing which is flanged and expandable at one end, removes valve lifter after removal of valve covers and push rods.

B72-10114

HIGH SPEED, SELF-ACTING, FACE-CONTACT SHAFT SEAL

HAS LOW LEAKAGE AND VERY LOW WEAR

J. Zuk, L. P. Ludwig, and R. L. Johnson

Aug. 1972 See also B72-10447; NASA-TN-D-5744; NASA-TN-D-6164; NASA-TN-D-7006

LEWIS-11598

Design adds gas thrust bearing to face of conventional face seal. Bearing lifts seal's carbon face out of contact after startup and establishes thin gas film between sealing surfaces. Operating pressure and speed capabilities are greater than those of conventional face seals.

B72-10117

DISPERSION RING REDUCES INJECTOR ORIFICE-TO-ORIFICE FLOW VARIATION

R. L. Garber (N. Am. Rockwell Corp.) and V. W. Jaqua (N. Am. Rockwell Corp.)
 1972

MSC-15953

Technique substantially reduces machine complexity, improves injector performance and is useful for products mixed or homogenized by injector process. Method is applicable to pharmaceutical, food, dairy and petrochemical industries.

B72-10118

THREE-POINT COMPOUND SINE PLATE OFFERS COST AND WEIGHT SAVINGS

A. P. Barras (N. Am. Rockwell Corp.)
 1972

MSC-15818

Work piece adjustment fixture reduces size, weight and set-up complexity of alignment platforms used in metal blank machining. Design benefits designers and manufacturers of machine tools and measuring equipment.

B72-10120

DYNAMIC VALVE TO SUPPLY CONSTANT TOTAL THRUST TO TWO ORIFICE JETS

W. H. Egli (Honeywell, Inc.)
 1972

ARC-10239

Valve, maintaining constant total flow, is driven mechanically in periodic alterations to yield correspondingly periodic outputs of constant sum. Design is applicable to development of jet flaps for helicopter use and may be useful in a multinozzle system.

B72-10122

UNIVERSAL INVERTED FLEXURE

W. O. Hadland
 1972

ARC-10345

Flexure block fabricated from single piece of material minimizes effect of temperature changes and prevents overstressing of the flexing element.

B72-10173

VORTEX SERVOVALVE FOR FLUIDIC OR ELECTRICAL INPUT

T. S. Honda (GE)
 1972 See also NASA-CR-73304

ARC-10155

Proportional pressure control servovalve consisting of fluid amplifier bellows-driven jet-pipe and two vortex valves operating in push-pull, with a pair of bellows for pressure feedback is tolerant to contaminant particles and meets minimum standby flow requirements for applications such as rocket thruster nozzles.

B72-10174

NEW FULL-COMPLEMENT BALL BEARING LUBRICATION TECHNIQUE

B. Rockower (MIT)
 1972

MSC-13850

Undersized spacer balls rub against oil impregnated wiper, pick up lubricant, and transmit it to load carrying balls and raceways.

07 MACHINERY, EQUIPMENT, AND TOOLS

B72-10178

AIRFLOW DISTRIBUTION CONTROL FOR IMPROVED TURBINE ENGINE PERFORMANCE

A. J. Juhasz and J. D. Holdeman

May 1972 See also NASA-TN-D-6435

LEWIS-11593

Control allows significant diffuser length and weight reduction, reduces combustor exhaust emissions during engine idle, and improves combustor altitude, relight capability.

B72-10179

IMPROVED SYSTEM FOR MEASURING SPEED OF ROTATING MACHINERY

E. G. Smith (GE)

1972

ARC-10413

Gear designed with spaces for 61 or 62 teeth but having 1- or 2-tooth gap provides reference point that can be detected electronically and retains convenient count of 60 per revolution obviating need for duplicate electronic equipment.

B72-10197

BILEAF MECHANICAL STRAIN GAGE

L. R. Guist

May 1972

ARC-10303

Bileaf lever detects small deformations by highly magnifying linear displacements. Device is applicable to force measuring instruments, pressure cells, temperature gages, existing strain gages, dial gages, or extensometers. Additional magnification is obtained by cementing a small mirror to mobile end of bileaf.

B72-10211

MINIATURE HIGH PRESSURE REGULATOR

H. W. Wright, Jr. (TRW Systems Group) and W. S.-S. Wang (TRW Systems Group)

May 1972

ARC-10428

Metal bellows, capable of supplying required spring rate and operational stability, replaced diaphragms, sliding seals, and springs in design of small gas regulator.

B72-10216

DETERMINATION OF IMPACT SENSITIVITY OF MATERIALS AT HIGH PRESSURES

L. Davis, D. Pippen, J. Stradling, and D. Whitaker (Service Technol. Corp.)

Dec. 1972

MSC-13700

Compact device is used to determine impact sensitivity of material in static, high pressure, gaseous environment. It can also be instrumented to monitor and record pressure, temperature, and striker impact force. Device is used in conjunction with commercially available liquid oxygen impact tester which provides impact energy.

B72-10264

TURBOPUMP RADIAL AND AXIAL ROTOR SUPPORT SYSTEM

P. S. Buckmann (Aerojet Liquid Rocket Co.)

Jun. 1972

M-FS-21495

Design of thrust balancer minimizes leakage bypass and obviates need for conventional thrust balancer. System allows operation at low flow rates and high thrust capacity at cryogenic temperatures and high pressures.

B72-10283

A CABLE STABILIZER FOR OUTDOOR ELEVATORS

E. J. Davis and B. A. Tolson

Jun. 1972

KSC-10513

Stabilizer, developed for outdoor elevators, prevents cables from swaying in the wind.

B72-10287

COMBINATION THROTTLE AND SHUTOFF VALVE

J. W. Carriker (Aerojet Liquid Rocket Co.)

Jun. 1972

M-FS-21513

Combination of translating sleeve throttle valve and conventional poppet valve provides capability of shutting off flow completely by poppet and sleeve control of the rate of flow. Integration of the two concepts can be accomplished without difficulty and in a manner that requires a minimum of development.

B72-10292

A METHOD FOR CALCULATING THE EFFECTS OF DESIGN ERRORS AND MEASUREMENT ERRORS ON PUMP PERFORMANCE

D. A. Anderson

Jun. 1972 See also NASA-TN-D-5919

LEWIS-11503

Technique has been developed for calculating effects of design errors and measurement errors on pump performance. Error equations and charts are utilized to relate amount of error in given performance parameter to amount of error in given design or measured variable. Error equations were derived primarily for axial flow pumps, but are not limited to axial flow.

B72-10319

TOOL CARRIER

V. A. DesCamp (Martin Marietta Corp.)

Dec. 1972

M-FS-21469

Flexible fingers meshed together in hinged container secure working tools and parts around waist or thigh of workman. Hairbrush-like fingers across carrier interior allow tool placement from top or bottom without visual coordination.

B72-10322

BALL BEARING PROTECTOR

R. A. Burns

Jul. 1972

M-FS-21612

Mechanical device for reducing the stresses imposed on ball bearings when bearings are exposed to forces caused by vibration is described. Bearing protector is press fitted on rotor shaft and slip fitted into bearing housing. Bearing stop which contacts inner race stops shaft and bearing when moving along shaft axis and removes load from ball bearings.

B72-10325

REMOTE WEIGHING DEVICE

J. P. Valinsky (McDonnell-Douglas Corp.)

Jul. 1972

M-FS-21556

Mechanical device for accurate measurement of weight and changes in weight is presented. Diagram of mechanical equipment is illustrated. Construction of system is described and method of operation is analyzed.

B72-10326

TURBULENT MIXING FILM COOLING CORRELATION

A. J. Juhasz and C. J. Marek

Dec. 1972 See also NASA-TN-D-6360

LEWIS-11417

Film cooling effectiveness correlation predicts air flow requirement for cooling gas turbine combustors. Turbulent mixing model accounts for mixing rate between cooling film and hot gas stream. Resulting equation correlates data within plus or minus 20 percent.

B72-10329

PACKAGING CONCEPT FOR LSI BEAM LEAD INTEGRATED CIRCUITS

B. W. Kennedy

Jul. 1972

M-FS-21374

Development of packaging system for mounting beam lead integrated chip circuit on lead frame is discussed. Process for

fabricating large scale integration circuits is described. Diagrams illustrating method of construction are included.

B72-10332

NONCONTACT TORQUE MEASUREMENT USING STROBOSCOPIC TECHNIQUES

W. H. Leonard (Grumman Aerospace Corp.)

Jul. 1972

MSC-12282

Noncontact torquemeter measures torsional deflection of rotating shaft and results are viewed on vernier scale. Magnitude of torque must be calculated from measured deflection. Device has no electric connections with the rotating member and is easy to use.

B72-10345

STEM CLUTCH FOR MOTOR DRIVEN VALVE

D. E. Blum and J. F. Wiltens

1972

LRL-10032

Development of mechanical device to reduce possibility of damage to motor driven needle valve is discussed. Mechanical clutch is employed to allow slippage when needle valve reaches limit of travel. Operation of system for various conditions is described.

B72-10348

AN ECONOMICAL VENT COVER

A. C. Lee (McDonnell-Douglas Astron. Co.) and M. D. McDonald (McDonnell-Douglas Astron. Co.)

Jul. 1972

M-FS-20692

Inexpensive formed-plastic vent cover has been developed that allows controlled purge of vent systems and also provides blowout protection. Cover can also be used in relief mode to allow normal system relief flows without disengaging from vent system. Cover consists of two parts made of plastics with varying densities to fit media used and desired pressures.

B72-10352

REMOTE CONTROL FLARE STACK IGNITER FOR COMBUSTIBLE GASES

W. L. Ray

Jul. 1972

M-FS-21675

Device has been designed and developed for igniting nonrecoverable combustible gases and sustaining combustion of gases evolving from various gas vent stacks. Igniter is superior to existing systems because of simplicity of operation, low cost fabrication, installation, operational and maintainability features, and excellent reliability in all phases of required operations.

B72-10355

PERLOAD INDICATING TURNBUCKLE

W. T. Appleberry (McDonnell-Douglas Corp.)

Jul. 1972

M-FS-21488

Low cost, easily manufactured turnbuckle was developed for applying a predetermined load on strap assemblies. Unit consists of sleeve and nut assembled on turnbuckle that is pulled to predetermined load in tension test machine.

B72-10377

SIMPLE TURBINE BALANCING TEST APPARATUS

M. H. Vavra (Astro-Aeron. Propulsion Lab.), J. E. Hammer (Astro-Aeron. Propulsion Lab.), and L. E. Bell (Astro-Aeron. Propulsion Lab.)

Jul. 1972 See also NASA-CR-1967

LEWIS-11658

Simple, inexpensive apparatus has been devised for testing dynamic balance of turbine rotors. No elaborate instrumentation is required and rotor is spun by directing jet of air against blades. Basic principle involved is that of the vibration of a mass on a spring. Apparatus can be used where conventional, expensive balance facilities are not readily available.

B72-10384

CAVITATION DATA FOR HYDRAULIC EQUIPMENT

J. Hord (NBS) and R. O. Voth (NBS)

Jul. 1972

LEWIS-11642

Development of cavitation B-factors for helium, parahydrogen, nitrogen, fluorine, oxygen, refrigerant 114, and water is discussed. B-factor is defined and numerical relationships are established. Mathematical models are included and alternative methods of determining B-factor are explained.

B72-10385

NONCONTAMINATING TECHNIQUE FOR MAKING HOLES IN EXISTING PROCESS SYSTEMS

T. P. Hecker, H. P. Czapor, and S. M. Giordano

Jul. 1972 See also NASA-TM-X-2431

LEWIS-11595

Technique is developed for making cleanly-contoured holes in assembled process systems without introducing chips or other contaminants into system. Technique uses portable equipment and does not require dismantling of system. Method was tested on Inconel, stainless steel, ASTMA-53, and Hastelloy X in all positions.

B72-10398

PLANETARY ROCK CORER AND DRILL CONCEPTS

R. E. Imus

Jul. 1972

NPO-11416

Several planetary rock corers and drill design concepts have been developed for obtaining subsurface rock samples in future planetary explorations. Tools are designed for unmanned space vehicles. Two devices are rotary impact multiple chisel trepan rock corer and hole drilling tool.

B72-10400

A VALVE CONCEPT FOR REMOTE FLUID FLOW CONTROL

W. J. Flynn (N. Am. Aviation, Inc.)

Jul. 1972

M-FS-16097

Valve concept has been devised which offers lightweight, simplified mechanism capable of automatic control of large number of fluid flow ports. Valve control is achieved with valve stem which is bimetallic device activated by heating coil to open or close selected supply port. Number of controlled ports is limited only by desired physical size of system.

B72-10404

CONTROLLED FLOW ASSEMBLY

A. E. Cohen (McDonnell-Douglas Corp.)

Jul. 1972

M-FS-21716

Incorporation of isolation valves in high pressure oxygen supply system prevents occurrence of shock ignition when valves are opened. Specifications of equipment show flow rates, pressure ratings, and service life. Illustration of equipment is provided.

B72-10414

CHUCK FOR DELICATE DRILLS

C. S. Copeland

Sep. 1972

ARC-10660

Development of oil film technique to couple power between drive spindle and drill chuck for delicate drilling operations is discussed. Oil film permits application of sufficient pressure, but stops rotating when drill jams. Illustration of equipment is provided.

B72-10426

MAGNET-WIRE WRAPPING TOOL FOR INTEGRATED CIRCUITS

T. H. Takahashi

Aug. 1972

NPO-11815

Wire-dispensing tool which resembles mechanical pencil is used to wrap magnet wire around integrated circuit terminals uniformly and securely without damaging insulative coating on

07 MACHINERY, EQUIPMENT, AND TOOLS

wire. Tool is hand-held and easily manipulated to execute wire wrapping movements.

B72-10433

A TOOL FOR CUTTING ULTRA THIN SLITS IN METALS

W. McMahon (N. Am. Rockwell Corp.)

Jul. 1972

KSC-10770

Tool produces slits of 0.0305 mm widths in materials up to RC 50 hardness, minimizes material waste and improves precision. Device may be used for general metal cutting and for producing simulated cracks in metal samples used in fatigue tests.

B72-10434

AIR ASSIST FUEL NOZZLE REDUCES AIRCRAFT GAS TURBINE ENGINE EMISSIONS AT IDLE OPERATION

D. Briehl and L. C. Papathakos

Jul. 1972 See also NASA-TN-D-6404

LEWIS-11512

Reduction in unburned hydrocarbons from jet engine by use of air assist fuel nozzle is discussed. Operation of nozzle for improving combustion efficiency by improving fuel atomization is analyzed. Advantages to be achieved by air assist fuel nozzle are analyzed.

B72-10447

HIGH-SPEED, SELF-ACTING SHAFT SEAL (CIRCUMFERENTIAL TYPE)

L. P. Ludwig and W. F. Hady

Jul. 1972 See also B72-10114; NASA-TN-D-5744

LEWIS-11274

Shaft riding circumferential seal is used with turbine engines under high pressure conditions. Construction of seal is discussed and schematic diagram to show operations is provided.

B72-10459

ADJUSTABLE LOCKING DEVICE

O. J. Fincannon (McDonnell-Douglas Corp.)

Aug. 1972

M-FS-21650

Adjustable locking device is used for taking up end play of shaft without displacing shaft radially. Coincidentally threaded collars fastened to one or both ends of shaft are threaded in and out of one another for adjustment of end play. Intrinsic feature is its ability to be locked in any translatable position without axial displacement of shaft.

B72-10470

BALL DETENT MECHANISM

A. S. Cousin (McDonnell-Douglas Corp.)

Aug. 1972

M-FS-21735

Mechanical device for providing redundancy for critical operation is described. Operation of equipment and details of construction are discussed. Two illustrations of equipment to show basic and modified configurations are provided.

B72-10475

EFFICIENT BAFFLE PREVENTS OIL BACKSTREAMING IN DIFFUSION PUMPS

J. R. Meneghetti

Aug. 1972

LRL-10025

High vacuum diffusion pump baffle, positioned immediately above pump stack, prevents vaporized pumping oil from entering and contaminating test chamber. Pumping vapors are collected and condensed on the baffle and flow back to pump base reservoir.

B72-10484

SLOT CONFIGURATION FOR AXIAL-FLOW TURBO-MACHINERY BLADES

W. E. Taylor (United Aircraft Res. Labs.)

Aug. 1972 See also NASA-CR-72870

LEWIS-11572

Machining of slot in turbine blades of axial flow turbines to provide flow path between pressure and suction surfaces is

discussed. Slot configuration and improvements in blade performance are described. Diagram of blade slot to show geometry of modification is included.

B72-10497

A RAPID, PRECISE, RECIPROCATING-MOVEMENT COLOR FILTER SYSTEM

P. G. Philipps (Electron. Image Systems Corp.), P. Epstein (Electron. Image Systems Corp.), G. Donovan (Electron. Image Systems Corp.), and E. LaWhite (Electron. Image Systems Corp.)

Aug. 1972

GSFC-11255

Unit was designed for moving color filters in and out of position in less than 46 ms. System may be used to record previously derived colors on photorecorder or to scan different color or wavelength components of rapidly passing scene, as in aerial reconnaissance. Rapid, precise reciprocating movement may be useful in purely mechanical and chemical applications.

B72-10498

NO-ERR TYPING AIDS

R. D. Dubois (Boeing Co.) and G. T. Pinson (Boeing Co.)

Aug. 1972

M-FS-15218

Device for aligning paper in typewriter to correct one letter or line of type is discussed. Two types of correcting devices are described and illustrations of the devices are provided.

B72-10499

TANDEM STEERABLE RUNNING GEAR

O. J. Fincannon (McDonnell-Douglas Corp.) and D. L. Glenn (McDonnell-Douglas Corp.)

Aug. 1972

M-FS-22012

Characteristics of steering assembly for vehicle designed to move large components of space flight vehicles are presented. Design makes it possible to move heavy and bulky items through narrow passageways with tight turns. Typical configuration is illustrated to show dimensions of turning radius and minimum distances involved.

B72-10509

A TOOL FOR MEASURING ELEVATOR CABLE TENSION

E. L. Weaver (Bendix Corp.)

Dec. 1972

KSC-10708

Simple tool for measuring relative cable tension is described, which weighs approximately two pounds and can be produced at one-tenth cost of present tools.

B72-10536

HIGH-VOLUME PRESSURE RELIEF VALVE

W. H. Dillard (Bendix Corp.)

Dec. 1972

KSC-10707

Valves with counterweights to assist in opening and closing are described, which can release large volumes of gas almost instantaneously, and provide airtight seals.

B72-10537

ADVANCED HIGH-TEMPERATURE ELECTROMAGNETIC PUMP

J. W. Gahan (GE) and A. H. Powell (GE)

Sep. 1972 See also NASA-CR-1949; NASA-CR-1950; NASA-CR-1951

LEWIS-11283

Three phase helical, electromagnetic induction pump for use as boiler feed pump in potassium Rankine-cycle power system is described. Techniques for fabricating components of pump are discussed. Specifications of pump are analyzed.

B72-10538

SELF-ALIGNING, LOW-PRESSURE SEALING POPPET VALVE

R. Gonzalez (N. Am. Rockwell Corp.) and W. A. Bratfisch (N. Am. Rockwell Corp.)

Sep. 1972
MSC-17745

Design and characteristics of poppet valve operated by very low differential pressures to control fluid flow are described. Valve is used to control flow of petroleum, chemical, and aircraft hydraulics where low leakage rates and activation at low pressures are required.

B72-10539
FILM HANDLING SYSTEM FOR LASER SCANNER/RECORDER
 A. Maciel, Jr. (Singer-Gen. Precision, Inc.)
 Dec. 1972

MSC-14121
 System is described for transporting and holding cut or roll 35-mm, 70-mm, 12.50-cm, and 24.13-cm films without replacement of platens or use of tools of any kind.

B72-10542
FILM HOLDER FOR CURVED VACUUM PLATEN
 A. Maciel, Jr. (Singer Corp.) and C. E. Hauber (Singer Corp.)
 Sep. 1972

MSC-14120
 Vacuum apparatus for holding photographic film of various widths against cylindrically curved platens is discussed. Construction details and method of operation are explained. Illustration of equipment is provided.

B72-10569
VISE TO HOLD BONES OR OTHER IRREGULAR OBJECTS
 R. H. Dowell
 Sep. 1972

ARC-10679
 Vise with stationary vee-shaped jaw and segmented notched jaw for holding irregular shaped objects is described. Operation of the device and specific application to holding bones are explained. Diagram of equipment is provided.

B72-10574
SELF-DEPLOYING BOOM
 W. T. Tumulty and W. P. Sours
 Sep. 1972

GSFC-10566
 Development and operation of metal ribbon which acts like self deploying boom are described. Metal ribbon is retained on two rollers for storage and extends into nonretractable tubular structure upon release. Illustration of equipment is provided.

B72-10575
SLITTING FLAT CONDUCTOR CABLES WITH THE SINGLE CUTTING EDGE SLITTER
 W. Angele and C. M. Chambers
 Sep. 1972

M-FS-20111
 Manually operated slitter can cut single slit in flat conductor cable to any desired length. Lateral position of flat conductor cable is adjusted with aid of optical magnifier and cursor glass to ensure that slit is accurately placed between conductors. Multiple slits may be made by repeating procedure for single slit.

B72-10597
PRECISION MACHINING OF STEEL DECAHEDRONS
 W. J. Abernathy and J. R. Sealy
 Sep. 1972

M-FS-21361
 Production of highly accurate decahedron prisms from hardened stainless steel is discussed. Prism is used to check angular alignment of mounting pads of strapdown inertial guidance system. Accuracies obtainable using recommended process and details of operation are described. Photographic illustration of production device is included.

B72-10640
FLUID OPERATED QUICK RELEASE MECHANISM
 R. A. Brown (Sperry Rand Corp.)

Oct. 1972
M-FS-20205

Gas operated release mechanism releases load by fluid pressure to provide positive action quick release. Method can be used with large loads and is useful in repetitive cycling functions where shear pins and similar devices would be cumbersome.

B72-10645
FILL AND VENT QUICK DISCONNECT
 R. Y. Boerner (McDonnell-Douglas Corp.) and R. W. Hedrick (McDonnell-Douglas Corp.)
 Dec. 1972

M-FS-21822
 Hydraulic disconnect coupling on ground serving half of spacecraft refrigeration cooling system employs movable center stem for venting and closing nipple poppet. Self sealing poppet quickly connects cooling system to spacecraft without manual work. Recessed sealing surface insures open poppet when stem retracts.

B72-10672
IMPROVED LIP SEAL FOR ROTATING SHAFTS
 D. L. Endicott (McDonnell-Douglas Corp.)
 Oct. 1972

LEWIS-11602
 Sealing efficiency, service life, and seal loading limits of lip seal for rotating shafts are analyzed. Construction of seal and areas of application are described. Specific advantages of improved lip seal over conventional seals are listed.

B72-10678
PORTABLE BEVELING TOOL
 R. H. Snowden (N. Am. Rockwell Corp.)
 Oct. 1972

M-FS-16863
 Portable tool was designed to semiautomatically bevel end surfaces of tubular or cylindrical components. Tool may be used for fabrication of elbow assembly which requires mating flange and elbow by fusion butt welding.

B72-10681
HIGH TORQUE BELLOWS SEAL ROTARY DRIVE
 A. J. Diaguila, J. W. Macomber, and D. W. Adams
 Oct. 1972

LEWIS-11813
 Bellows seal rotary drive device was developed which allows high torque transmission through sealed compartments. Bearing friction which would normally be carried by sealing bellows in comparable devices is absorbed by universal-gimbal joint. It can be used to transmit high torque, low speed, rotary motion through sealed barriers to prevent contamination or escape of fluids.

B72-10685
A CONCEPT FOR UNIVERSAL PLIERS
 E. T. Neal (Boeing Co.)
 Oct. 1972

KSC-10768
 By modification in existing design, pliers can be made to have one pair of handles that will accept number of different jaws. Concept is useful for light to medium duty service. Complete set of jaws may be made to suit specific hobbies or applications.

B72-10687
A SHUT-OFF VALVE FOR FLEXIBLE TUBING
 W. W. Reyburn (McDonnell-Douglas Corp.)
 Dec. 1972

M-FS-21731
 Design of light weight valve for flexible tubing is described. Valve is hand operated and provides positive sealing in normally closed position. Diagram is provided to show construction of valve. Principles of operation are explained.

B72-10688
CYLINDRICALLY SHAPED ROPE LADDER
 C. S. Range (N. Am. Aviation, Inc.)
 Oct. 1972

08 FABRICATION TECHNOLOGY

M-FS-16319

Cylindrical shaped ladder is rope net held in cylindrical configuration by supporting metal hoops which are spaced at vertical intervals along ladder. Rope ladder is easily handled and transported.

08 FABRICATION TECHNOLOGY

B72-10025

SIMPLE METHOD FOR FORMING THIN-WALL PRESSURE VESSELS

A. L. Erickson and L. R. Guist
1972 See also NASA-TM-X-62043
ARC-10511

Application of internal hydrostatic pressure to seam-welded circular cylindrical tanks having corner-welded, flat, circular ends forms large thin-walled high quality tanks. Form limits expansion of cylindrical portion of final tank while hemispherical ends develop freely; no external form or restraint is required to fabricate spherical tanks.

B72-10041

BONDING TITANIUM TO RENE 41 ALLOY

R. W. Scott (GE)
1972

ARC-10311

Pair of intermediate materials joined by electron beam welding method welds titanium to Rene 41 alloy. Bond is necessary for combining into one structure high-strength-to-density-ratio titanium fan blades and temperature-resistant nickel-base alloy turbine buckets in VTOL aircraft lift-fan rotor.

B72-10058

ALUMINUM FOIL INTERCONNECTS FOR SOLAR CELL PANELS

S. Schwartz (Hughes Aircraft Co.) and L. B. Keller (Hughes Aircraft Co.)
1972

ARC-10374

Commercially available sonic welding system and a specially-designed tip bonds aluminum foil interconnects to titanium-silver solar cell contacts.

B72-10081

LOW-FRICTION BALL-AND-SOCKET

R. E. Imus
1972

NPO-11348

Ball-bearing retainer assembly reduces friction in ball-and-socket mount which replaces gimbals mounting used with spacecraft antennas.

B72-10237

THERMAL ANALOG DEVICE REDUCES MACHINING ERRORS

E. R. McClure
Dec. 1972

AEC-10080

Thermal analog devices predict thermal expansion and contraction of machine structures subjected to various heat inputs. Analog devices correct positioning of machine tools to compensate for distortion of machine frame.

B72-10238

SURVEY OF INFORMATION CONCERNING LARGE DIAMETER DEEP HOLE DRILLING

Innovator not given (Nucl. Defense Res. Corp.) Dec. 1972 See also NVO-423-1

AEC-10051

Data are presented, covering drilling techniques, factors

affecting penetration rates, cost estimation, and system improvement. Various drill bits are also discussed.

B72-10252

THERMALLY STABLE STRUCTURAL FRAMEWORK

H. U. Schuerch (Astro Res. Corp.)
Sep. 1972 See also NASA-CR-1973
ARC-10612

Development of structural framework with zero or negligible thermal expansion is discussed. Combination of two types of metallic materials in binary trellis to compensate for thermal expansion is explained. Construction details are presented and illustration is included.

B72-10288

JOINING PRECIPITATION-HARDENED NICKEL-BASE ALLOYS BY FRICTION WELDING

T. J. Moore
Jun. 1972 See also NASA-TM-X-2411
LEWIS-11514

Solid state deformation welding process, friction welding has been developed for joining precipitation hardened nickel-base alloys and other gamma-prime-strengthened materials which heretofore have been virtually unweldable. Method requires rotation of one of the parts to be welded, but where applicable, it is an ideal process for high volume production jobs.

B72-10293

EXPLOSIVE CORD

Innovator not given (Explosive Technol. Co.) Jun. 1972
M-FS-21928

Device, jetcord, is metal-clad linear explosive of sufficient flexibility to allow forming into intricate shapes. Total effect is termed "cutting" with jetcord consistently "cutting" a target of greater thickness than can be penetrated. Applications include sheet metal working, pipe cutting and fire-fighting.

B72-10349

TECHNIQUE FOR PRODUCING WIND-TUNNEL HEAT-TRANSFER MODELS

C. E. DeRose, W. C. Norman, L. Yee, and D. M. Oishi
Dec. 1972

ARC-10658

Inexpensive thin skinned wind tunnel models with thermocouples on certain surface areas were fabricated. Thermocouples were designed for measuring aerodynamic heat transfer in wind tunnels.

B72-10356

NEW COMPRESSION MOLDING PROCESS OF THERMO-SETTING PLASTIC COMPOUNDS

W. C. Heier
Jul. 1972

LANGLEY-10782

Process permits molding of longer, thinner bodies, such as cylindrical rocket motors, while maintaining equal or superior physical properties. Major advantages of process are presented.

B72-10359

LOW COST ANTI-GALLING BUSHINGS

E. O. Spencer (N. Am. Rockwell Corp.)
Dec. 1972

LEWIS-11724

Heat shrinkable Teflon tubing is cut to size, slipped onto shaft, heated to shrink tightly to shaft, or machined to final outside diameter size. Shaft bushings fabricated from shrinkable Teflon tubing provide economical close fitting sleeves that prevent galling and contamination in valves.

B72-10374

NONDESTRUCTIVE TESTING FOR BRAZE VOIDS IN THIN PANELS BY USE OF SPECIAL COATINGS

J. C. Gibson (AiRes. Mfg. Co.)
Jul. 1972

LANGLEY-10486

Application of commercial coating to exterior of sandwich

panel structures for determining presence of voids in brazed plates is discussed. Procedure for applying coating material and method of conducting nondestructive tests are explained. Illustrations are included to show appearance of voids.

B72-10394
MANUFACTURING CONTAMINATION PREVENTION HANDBOOK

R. T. Mackey, Sr. (N. Am. Rockwell Corp.)

Jul. 1972

M-FS-19113

Manufacturing management discipline handbook concerning contamination prevention may present principles and guidelines which can be adopted for industrial and commercial manufacturer usage. Contamination prevention program is categorized into three basic aspects: initial prevention; control of amount of unpreventable contamination; and detection and elimination of remaining contamination.

B72-10427
ACOUSTIC EMISSION USED AS WELD QUALITY MONITOR

W. O. Jolly

Dec. 1972

AEC-10018

Acoustic emission technique is described for use as quality control tool in nondestructive inspection of welds. Stress mounts around weld defect until it exceeds yield strength of material. Pressure wave relieving the stress is emitted and followed by oscillations caused by multiple reflections. Acoustic emissions are then detected by sensor similar to ultrasonic sensor.

B72-10428
FABRICATION TECHNIQUES FOR ORGANIC ELECTROLYTE BATTERY

G. D. McDonald

Dec. 1972 See also SC-CR-69-3290

AEC-10019

Experiments in fabrication and testing of silver chloride electrodes for use in organic electrolyte batteries are discussed. Electrodes were fabricated by pelletizing, sintering, hot press binding, and paste binding silver chloride on expanded metal grids of nickel or silver. Each technique was investigated by statistically designed factorial experiment.

B72-10432
TWISTABLE MOLD FOR HELICOPTER BLADES

E. S. Carter (United Aircraft Corp.) and E. F. Kiely (United Aircraft Corp.)

Dec. 1972

ARC-10682

Design is described of mold for fabrication of blades composed of sets of aerodynamic shells having same airfoil section characteristics but different distributions. Mold consists of opposing stacks of thin templates held together by long bolts. When bolts are loosened, templates can be set at different positions with respect to each other and then locked in place.

B72-10445
NONFLAMMABLE AND ABRASION RESISTANT COATING PROCESS FOR GLASS FIBERS

J. J. Dillon

Jul. 1972

MSC-14024

Surface treating glass fibers with polytetrafluoroethylene improves their resistance to heat and flammability. Organosilicon lubricant padding improves fabric flexibility.

B72-10457
LATCH MECHANISM

G. W. Ulrich (McDonnell-Douglas Corp.)

Aug. 1972

M-FS-21606

Ratchet device transfers loads imposed on latch to support structure before latch springs resist loads, positively locks two pivoted structures on contact, and carries loads in all directions.

B72-10513

A NEW LOW-COST METHOD FOR PRODUCING COLLIMATING MIRRORS

Innovator not given (Lewis Res. Center) Aug. 1972

LEWIS-11553

New method for finishing and plating machined surfaces for collimating mirrors holds surface tolerances within accepted limits. Technique reduces cost to less than one-tenth that of conventional methods.

B72-10534

SPUTTER ETCHING OF HEMISPHERICAL BEARINGS

R. J. Schiesser (MIT)

Sep. 1972

HQ-10712

Technique was developed for fabricating three dimensional pumping grooves on gas bearings by sputter etching. Method eliminates problems such as groove nonuniformity, profile, and finish, which are associated with normal grooving methods.

B72-10562

BUILT-IN BLEEDER SYSTEM IN LAMINATED PLASTIC STRUCTURES

A. G. Aguilar (N. Am. Rockwell Corp.) and G. J. Cizek (N. Am. Rockwell Corp.)

Dec. 1972

MSC-17713

Method is described for interplying resin-absorbing, glass bleeder cloth with the layout for fabricating laminated nonflammable plastic structures with wrinkle-free surfaces.

B72-10593

FABRICATION OF COOLED, GRAPHITE-LINED STRUCTURES

R. A. Duschka and V. R. Stubbs (Aerojet Liquid Rocket Co.)

Sep. 1972 See also NASA-CR-120853

LEWIS-11741

Improved method of fabricating cooled graphite-lined thrust chamber has been developed. Layer of nickel is electrodeposited onto outer surface of machined and contoured graphite liner. Coolant passages are machined into nickel layer, filled with wax, outer shell electroformed over this, and wax removed. Tests in flox/methane rocket engine were completely successful.

B72-10595

MACHINE FINISHES BALLS TO HIGH DEGREE OF ROUNDNESS

W. Angele and J. P. Hill, Jr.

Sep. 1972

M-FS-21448

Machine was developed to finish ball to roundness within 12.5 nm (half a microinch) from any types of hard material. Grinding and polishing to this tolerance is accomplished by lapping elements on four to six motor-driven spindles. Spindles are adjustably spring-loaded to ensure constant contact pressure on ball and are driven by variable speed electric motors.

B72-10616

POLISHING IS MADE CHEAPER BY DISPOSABLE DIAMOND-IMPREGNATED ABRASIVE CLOTH

F. J. Harper (Brown and Root/Northrop)

Dec. 1972

MSC-14247

Diamond impregnated abrasive cloth eliminated expensive diamond pastes and was economically disposed of to avoid contamination. Cloth was spunbonded nylon, but any napless fabric could be used. Cloth was sprayed with diamond abrasive gel.

B72-10635

DESIGN CRITERIA MONOGRAPH ON TURBOPUMP INDUCERS

Innovator not given (Lewis Res. Center) Dec. 1972 See also

NASA-SP-8052

LEWIS-11824

State of the art and design criteria for liquid rocket engine

08 FABRICATION TECHNOLOGY

turbopump inducers are summarized for optimal fabrication. Design criteria optimize hydrodynamic parameters to obtain highest suction specific speed without violating structural and mechanical constraints.

B72-10638 PHOTOEMISSIVE COATING

R. A. Gange (RCA)

Dec. 1972

M-FS-22003

Polystyrene coating is applied to holographic storage tube substrate via glow discharge polymerization in an inert environment. After deposition of styrene coating, antimony and then cesium are added to produce photoemissive layer. Technique is utilized in preparing perfectly organized polymeric films useful as single-crystal membranes.

B72-10644 AN APPROACH TO REAL-TIME PROCESS CONTROL OF SEMICONDUCTOR WIRE-BONDING

Innovator not given (Vanzetti Infrared and Computer Systems) Oct. 1972

M-FS-21558

Thermal probe using infrared-transparent optical fiber attached to tip of collet with resin to prevent movement during bonding is used to accurately measure temperature during wire bonding on semiconductors for use in large scale integrated circuits.

B72-10649 A SIMPLE, EFFICIENT RESISTANCE SOLDERING APPARATUS

C. M. Vermillion

Dec. 1972

GSFC-10913

Multiple resistance soldering device for attaching electric leads to multiple terminal block connectors uses power source with one terminal connected to working probe, and other terminal attached to connector carrying common pins for lead insertion. Mating of male and female connectors solders each lead to individual cup pin.

B72-10683 THE WELD-BRAZING METAL JOINING PROCESS

T. T. Bales, W. E. Arnold, Jr., and A. B. Lawson

Dec. 1972

LANGLEY-11072

Superior mechanical properties were obtained in metal joints weld-brazed between faying surfaces. Weld-braze applications and advantages are listed.

B72-10734 REDUCTION OF POROSITY IN ALUMINUM WELDMENTS

W. S. Lee

Dec. 1972

MSC-14198

Method is described for elimination of porosity of aluminum weldments by replacing polyvinyl chloride tubing (used to connect welder to gas source, and permeable to moisture at high humidity) with copper tubing. In addition liquid argon gas is used at weld stations.

B72-10744 ELECTRO-CHEMICAL GRINDING

P. L. Feagans (AiRes. Manuf. Co.)

Dec. 1972

LANGLEY-10801

Electro-chemical grinding technique has rotation speed control, constant feed rates, and contour control. Hypersonic engine parts of nickel alloys can be almost 100% machined, keeping tool pressure at virtual zero. Technique eliminates galling and permits constant surface finish and burr-free interrupted cutting.

B72-10745 IMPROVED PHOTOETCHING FABRICATION METHOD

C. L. Kistler (Pratt and Whitney Aircraft)

Dec. 1972

LEWIS-11268

Photoetching method producing well-defined lines with minimum undercutting was developed for etching coolant passages in nickel sheet. Phosphate coating is applied over conventional silver plate maskant and phosphoric acid solution is used to remove silver maskant. Phosphoric acid prevents etching of silver edges and mask has sharply-defined lines.

B72-10754

JOINING POROUS COMPONENTS TO SOLID METAL STRUCTURES

A. Fortini and G. Tulisiak

Dec. 1972 See also B68-10331; NASA-CR-72994

LEWIS-11259

Process for joining porous metal material to solid metal structure without cracking or blockage of porous component is described. Procedures of electron beam welding and electroforming are discussed. Illustration of microstructure resulting from process is included.

09 COMPUTER PROGRAMS

B72-10015

SOFTWARE CONTROL FOR LARGE SCALE ON-BOARD CHECKOUT: A CONCEPT

H. K. Grounds (IBM) and D. H. Norton, Jr. (IBM)

1972

MSC-13977

Two level system checkout in which first level satisfies continuous monitoring requirements and second level provides fault isolation to satisfy maintenance requirements, provides self-checking capability for monitoring system and enables recovery from unexpected error or failure interruptions. System must perform operational duties of navigation, control, and experimentation.

B72-10023

ALGORITHM FOR LIAPUNOV STABILITY ANALYSIS

G. R. Geiss (Grumman Aerospace Corp.), V. D. Cohen (Grumman Aerospace Corp.), and D. S. Rothschild (Grumman Aerospace Corp.)

1972 See also NASA-CR-1729; NASA-CR-73383

ARC-10498

Development of algorithm provides automatic computation of quadratic estimate of domain of stability for stable equilibrium states of nonlinear systems of ordinary differential equations.

B72-10064

PREDICTION OF DUCTED FAN PERFORMANCE

M. R. Mendenhall (Nielsen Eng. and Res., Inc.) and S. B. Spangler (Nielsen Eng. and Res., Inc.)

Aug. 1972

ARC-10615

Computer program to predict performance of ducted fan combination at specified advance ratio and angle of attack is described. Parameters affecting performance of ducted fan are presented. Information obtained from computer program is explained for various conditions considered.

B72-10065

VARIABLE DIMENSION AUTOMATIC SYNTHESIS PROGRAMS (VASP)

J. S. White and H. Q. Lee

1972

ARC-10616

Variable dimension FORTRAN 4 version of the Automatic Synthesis Program (ASP) compensates for limitations within the program itself. Improvements are versatile programming language, convenient input/output format, new subprograms, variable dimensioning, and efficient storage.

B72-10067
PROGRAM TO DETERMINE RADIATING, NONADIABATIC, INVISCID FLOW OVER A BLUNT BODY BY THE METHOD OF INTEGRAL RELATIONS

F. W. Taylor
 1972

LANGLEY-11048

Computer program performs the many calculations necessary for solving radiating, nonadiabatic flow of air in chemical equilibrium. Solution method provides accurate description of blunt body flow field in subsonic region.

B72-10068
PROGRAM FOR THE TRANSIENT RESPONSE OF ABLATING AXISYMMETRIC BODIES INCLUDING THE EFFECTS OF SHAPE CHANGE

L. M. Howser and S. S. Tompkins
 1972

LANGLEY-11049

Governing differential equation, boundary conditions for the analysis on which computer program is based, and method of solution of resulting finite difference equations are discussed in the documentation.

B72-10069
MAIN TANK INJECTION PRESSURIZATION PROGRAM
 E. C. Cady (McDonnell-Douglas Corp.) and D. W. Kendle (McDonnell-Douglas Corp.)

Dec. 1972

LEWIS-11368

Computer program predicts performance of fluorine-hydrogen main tank injection pressurization system for full range of liquid-hydrogen-fueled space vehicles. Analytical model includes provisions for heat transfer, injectant jet penetration, and ullage gas mixing. Analysis predicts GF2 usage, ullage gas and tank wall temperatures, and LH2 evaporation.

B72-10070
DESIGN OF TWO-DIMENSIONAL SHARP-EDGED-THROAT SUPERSONIC NOZZLE WITH BOUNDARY-LAYER CORRECTION

L. J. Goldman and M. R. Vanco
 1972

LEWIS-11636

Computer program accounts for effective nozzle geometry changes due to boundary layer displacement thickness. Program input and output are discussed.

B72-10071
PROGRAM FOR DETERMINATION OF RADIATION INTERCHANGE FACTORS

L. W. Fesler (N. Am. Rockwell Corp.) and T. S. McClintic (N. Am. Rockwell Corp.)

Dec. 1972

MSC-17563

Digital computer model was devised for determining thermal and solar radiation interchange factors. Program computes interchange factors among surfaces having any combination of following properties: diffuse emittance and reflectance, diffuse emittance and specular reflectance, diffuse emittance and components of diffuse and specular reflectance, and directional emittance and bidirectional reflectances.

B72-10072
WIND TRAJECTORY TRACING FOR AIR POLLUTION STUDIES (AIRPOL)

A. B. Street and J. N. Strand
 1972

NPO-11892

Wind trajectory computer program, consisting of data handling program and analysis program, traces Los Angeles Basin wind patterns either backward or forward in time. Program may be applicable to other areas.

B72-10073
STRUCTURAL DESIGN AND STRESS ANALYSIS PROGRAM

FOR ADVANCED COMPOSITE FILAMENT-WOUND AXISYMMETRIC PRESSURE VESSELS (COMTANK)

A. C. Knoell

1972

NPO-11943

Computer program has been specifically developed to handle, in an efficient and cost effective manner, planar wound pressure vessels fabricated of either boron-epoxy or graphite-epoxy advanced composite materials.

B72-10111
PROGRAM FOR CALCULATING LAMINAR AND TURBULENT BOUNDARY LAYERS IN ARBITRARY PRESSURE GRADIENTS

W. D. McNally

1972

LEWIS-11097

Computer program predicts growth of boundary layers along any surface where air is flowing. Two integral methods, Cohen-Reshotko and Sasman-Cresci, calculate laminar boundary layers and turbulent boundary layers, respectively; Schlichting-Granville method predicts transition from laminar to turbulent flow.

B72-10142
STANDARDIZATION AND QUALIFICATION OF COMPUTER PROGRAMS FOR CIRCUIT DESIGN

D. F. Martin (Calif. Univ.), L. P. McNamee (Calif. Univ.), D. E. Meyerhoff (Calif. Univ.), and T. S. Chow (Calif. Univ.)

1972

M-FS-21537

Study presents methods and initial procedures which may be obtained for development of more efficient uniform network analysis input language and theoretical tools to prove equivalence of data representations.

B72-10153
MISSILE AND MISS-DRAW PROGRAMS

C. M. Jackson, Jr. and W. C. Sawyer

May 1972

LANGLEY-10932; LANGLEY-10935

Method, developed and coded for digital computation, predicts aerodynamic loading on configurations for which linear theory assumptions are violated. Program is written in FORTRAN 4 for use on CDC-6000 series computers.

B72-10182
PROLATE SPHEROIDAL SLOSH MODEL FOR FLUID MOTION

H. A. Flanders (TRW Systems Group)

May 1972

MSC-13864

Mathematical model, designed for zero gravity conditions, analyzes dynamic effects of large amplitude fluid motion interior to a rigid body. It has two advantages over other mathematical models: (1) constrains slosh motion to given region in natural manner, and (2) allows equilibrium position of slosh mass to be anywhere on slosh surface.

B72-10214
RELIABILITY ANALYSIS BASED ON OPERATIONAL SUCCESS CRITERIA

F. G. Esmond (Santa Barbara Res. Center) and M. D. Johnson (Santa Barbara Res. Center)

May 1972

ARC-10490

Failure Modes, Effects, and Criticality Analysis Model disregards failures of insignificant components. Assumptions used to establish baselines for reliability prediction and analytical method are listed. Techniques are applicable to any commercial design and can be extended into software or management systems.

B72-10222
OPTIMIZATION TECHNIQUE FOR PROBLEMS WITH AN INEQUALITY CONSTRAINT

K. J. Russell (Hughes Aircraft Co.)

09 COMPUTER PROGRAMS

1972

ARC-10522

General technique uses a modified version of an existing technique termed the pattern search technique. New procedure called the parallel move strategy permits pattern search technique to be used with problems involving a constraint.

B72-10225

INDEFINITE INTEGRALS OF PRODUCTS OF SOME EXPONENTIAL AND TRIGONOMETRIC FUNCTIONS

W. Rostafinski

May 1972

LEWIS-11493

Two integrals have been developed which are needed to solve certain problems of mathematical physics related to the Bessel and Euler equations. Integrals of this type have known application in problems using cylindrical coordinates.

B72-10253

COMPUTER PROGRAM DRAWS THREE-DIMENSIONAL SURFACES

R. B. Canright, Jr. and P. Swigert

May 1972 See also NASA-TM-X-1589

LEWIS-10482

Computer plotting program PLOT 3D draws views of surface forms $z = f(x,y)$. Surface thus defined by program may be drawn after arbitrary rotations. Program portrays behavior of various functions involving two variables in many engineering, physics, and mathematical relationships.

B72-10261

DUAL REDUNDANT CORE MEMORY SYSTEMS

F. E. Hull (Martin Marietta Corp.)

Jun. 1972

MSC-13993

Electronic memory system consisting of series redundant drive switch circuits, triple redundant majority voted memory timing functions, and two data registers to provide functional dual redundancy is described. Signal flow through the circuits is illustrated and sequence of events which occur within the memory system is explained.

B72-10265

SNAP DYNAMICS

L. Kiefling, W. D. Whetstone, and C. E. Jones

Jun. 1972

M-FS-21531

Computer program calculates normal vibration modes of complex structures eliminating excessively large amounts of input data, run time, and core storage. Provision for accuracy improvement is also included.

B72-10267

VIDEO INFORMATION SYSTEM

E. R. Ritch (Ampex Corp.)

Jun. 1972

M-FS-21711

Computerized information storage and display system directs storage of documents, drawings, photographs, fingerprints, etc., and permits rapid retrieval for real-time viewing on remote consoles.

B72-10299

RAPID ANALYSIS OF ELECTRIC PROPULSION MISSIONS

A. C. Masey

Sep. 1972

ARC-10430

Computer program has been designed to handle computations for low thrust missions rapidly and with acceptable accuracy. Program defines performance and system requirements of electrically-propelled unmanned planet-orbiter and flyby missions. The program is written in FORTRAN 4 for use on an IBM 360 or CDC 6600 computer.

B72-10311

CUBIC SPLINE FUNCTIONS FOR CURVE FITTING

J. D. Young

Dec. 1972 See also UCRL-17659; UCRL-17742; UCRL-18253; UCRL-18346; UCRL-18364

LRL-10034

FORTRAN cubic spline routine mathematically fits curve through given ordered set of points so that fitted curve nearly approximates curve generated by passing infinite thin spline through set of points. Generalized formulation includes trigonometric, hyperbolic, and damped cubic spline fits of third order.

B72-10335

MATHEMATICAL TECHNIQUES FOR ESTIMATING OPERATIONAL READINESS OF COMPLEX SYSTEMS

I. D. Jacquier (N. Am. Rockwell Corp.) and P. A. Miltz (N. Am. Rockwell Corp.)

Jul. 1972

MSC-17694

Development of methods for predicting operational readiness of complex systems based on probability theory is discussed. Operational readiness of systems is defined and mathematical relationships involved in determining readiness are presented. Example of reliability engineering and quality control is included.

B72-10350

MEMORY REDUCTION THROUGH HIGHER LEVEL LANGUAGE HARDWARE

H. Kerner and L. Gellman

Jul. 1972

M-FS-21128

Application of large scale integration in computers to reduce size and manufacturing costs and to produce improvements in logic function is discussed. Use of FORTRAN 4 as computer language for this purpose is described. Effectiveness of method in storing information is illustrated.

B72-10362

COMPUTER PROGRAM FOR NATURAL GAS FLOW THROUGH NOZZLES

R. C. Johnson

Dec. 1972

LEWIS-11534

Subroutines, FORTRAN 4 type, were developed for calculating isentropic natural gas mass flow rate through nozzle. Thermodynamic functions covering compressibility, entropy, enthalpy, and specific heat are included.

B72-10405

FORTRAN PROGRAM FOR COMPUTING COORDINATES OF CIRCULAR-ARC, SINGLE AND TANDEM, TURBINE AND COMPRESSOR, BLADE SECTIONS ON A PLANE

W. D. McNally and J. E. Crouse

Dec. 1972

LEWIS-11237

Coordinates for circular arc blade section of aircraft high speed compressor gas turbines were computed using FORTRAN 4 program. Aerodynamic configurations studied include single segment airfoils, airfoils with slots, and multiple segment tandem arranged airfoil.

B72-10410

PROGRAM TO DETERMINE SPACE VEHICLE RESPONSE TO WIND TURBULENCE

H. D. Wilkening (Martin Marietta Corp.)

Dec. 1972

M-FS-21614

Computer program was developed as prelaunch wind monitoring tool for Saturn 5 vehicle. Program accounts for characteristic wind changes including turbulence power spectral density, wind shear, peak wind velocity, altitude, and wind direction using stored variational statistics.

B72-10444

VARIABLE BOUNDARY II HEAT CONDUCTION

J. Gramer (Gen. Dyn./Convair) and R. F. O'Neill (Gen. Dyn./Convair)

Jul. 1972

LEWIS-10679

Computer program for solving both transient and steady-state heat transfer problems is presented. Specific applications of computer program are described. Formulation for individual nodes of solid medium for heat balance is presented. Diffusion equation is solved for all nodes simultaneously at finite increments of time.

B72-10458**SYSTEMS EFFECTIVENESS EVALUATION PROGRAM**

H. P. Nicely, Jr. (GE) and W. D. Givens (GE)

Aug. 1972

HQ-10306

Eight integrated computer programs provide needed capability to reduce man-hours needed to perform routine monitoring and assessment of effectiveness, reliability, and maintainability of large electronic equipment systems.

B72-10483**COMPUTER PROGRAM FOR CALCULATING THE TEMPERATURE FIELD OF FACE SEALS**

T. E. Russell, G. P. Allen, L. P. Ludwig, and R. L. Johnson

Aug. 1972

LEWIS-11110

FORTAN 4 program for use on IBM 7094 computer for calculating temperature field of shaft seals is described. Shaft seals are composed of basically axisymmetric bodies. Cylindrical coordinate system is used as basis for analysis. Program is quite general and can be applied to variety of axisymmetric body problems.

B72-10486**COMPENSATOR DESIGN FOR LOW-SENSITIVITY LINEAR TIME-INVARIANT SYSTEMS (COMPDES)**

L. Willner (Rensselaer Polytech. Inst.)

Aug. 1972

M-FS-21652

Digital computer program written in FORTAN 4 has capability of synthesizing low order compensators to stabilize dynamical system in presence of parameter variations. Design scheme is accomplished by means of sensitivity function which is minimized with respect to eigenvalues.

B72-10504**GEOMETRICALLY NONLINEAR STATIC AND DYNAMIC ANALYSIS OF ARBITRARILY LOADED SHELLS OF REVOLUTION**

R. G. Ball (Naval Postgraduate School)

Aug. 1972

LANGLEY-11109

Computer program on axisymmetric response of shells with other meridional geometries and response of shells subjected to asymmetric loads is described. Description of theory, method of solution, instructions for preparing input data, and two sample problems to illustrate data preparation and output format are included.

B72-10568**HIGH SPEED SEQUENTIAL DECODER**

K. S. Gilhousen (Linkabit Corp.)

Sep. 1972

ARC-10657

Operation of sequential decoding of data at high rates using Fano algorithm is discussed. Actions followed by decoder in systematically searching branches are described. Technique of diagonal steps is explained and illustrated.

B72-10577**ANALYSIS AND COMPUTER PROGRAMS TO CALCULATE ACOUSTIC WAVE PROPERTIES OF BAFFLED CHAMBERS**

C. L. Oberg (N. Am. Rockwell Corp.), T. L. Wong (N. Am. Rockwell Corp.), and R. A. Schmeltzer (N. Am. Rockwell Corp.)

Sep. 1972

LEWIS-11529

Analytical methods and four computer programs have been developed for calculating wave motion in closed, baffled chambers

with rigid and non-rigid boundaries. Application of these methods to design of injector-face baffles in liquid propellant engines will provide significant insight into effects of baffles on combustion stability.

B72-10582**COMPUTER METHOD FOR IDENTIFICATION OF BOILER TRANSFER FUNCTIONS**

J. H. Miles

Sep. 1972 See also NASA-TM-X-2436

LEWIS-11808

Iterative computer aided procedure was developed which provides for identification of boiler transfer functions using frequency response data. Method uses frequency response data to obtain satisfactory transfer function for both high and low vapor exit quality data.

B72-10584**COMPUTER PROGRAMS FOR THE DESIGN OF LIQUID-TO-LIQUID JET PUMPS**

N. L. Sanger

Dec. 1972

LEWIS-11679

Computer programs based on one-dimensional equations for cavitating and noncavitating flow in liquid-to-liquid jet pumps are described.

B72-10585**COMPUTER PROGRAM FOR FITTING LOW-ORDER POLYNOMIAL SPLINES BY METHOD OF LEAST SQUARES**

P. J. Smith

Sep. 1972

LEWIS-11651

FITLOS is computer program which implements new curve fitting technique. Main program reads input data, calls appropriate subroutines for curve fitting, calculates statistical analysis, and writes output data. Method was devised as result of need to suppress noise in calibration of multiplier phototube capacitors.

B72-10586**COMPUTER PROGRAM FOR QUASI-THREE-DIMENSIONAL CALCULATION OF SURFACE VELOCITIES AND CHOKING FLOW FOR TURBOMACHINE BLADE ROWS**

T. Katsanis

Sep. 1972 See also NASA-TM-X-1394; NASA-TN-D-6177

LEWIS-11635

Computer program, CHANEL, can obtain quasi-three-dimensional solutions in any well-guided channel. Conditions that can be handled by program that could not be handled previously are nonuniform inlet temperature, pressure, prewhirl, nonaxial flow where meridional flow angle, meridional stream-line curvature, and radius can vary as desired from hub to tip.

B72-10589**REDUNDANT DATA MANAGEMENT SYSTEM**

J. R. Hall (McDonnell-Douglas Corp.)

Sep. 1972

M-FS-21831

Redundant data management system solves problem of operating redundant equipment in real time environment where failures are detected, isolated, and switched in simple manner. System consists of quadruply-redundant computer, input/output control units, and data bases. System inherently contains failure detection, isolation, and switching function.

B72-10599**SYSTEM/360 COMPUTER ASSISTED NETWORK SCHEDULING (CANS) SYSTEM**

A. C. Brewer (IBM)

Oct. 1972

GSFC-10909

Computer assisted scheduling techniques that produce conflict-free and efficient schedules have been developed and implemented to meet needs of the Manned Space Flight Network. CANS system provides effective management of resources in complex scheduling environment. System is automated resource

09 COMPUTER PROGRAMS

scheduling, controlling, planning, information storage and retrieval tool.

B72-10600 SIGNIFICANCE ARITHMETIC EXPERIMENTAL PACKAGE (SIGPAC)

I. Cole (Computation Planning, Inc.)

Oct. 1972

GSFC-11499

Method for use by computing facility to determine accuracy of computer calculations is presented. Primary goals of error analysis program are described. Program is designed for both FORTRAN 4 and ASSEMBLER for use with IBM 360 computer.

B72-10601 STUDY OF HIGH ALTITUDE PLUME IMPINGEMENT

C. J. Wojciechowski (Lockheed Missiles and Space Co.), M. M. Penny (Lockheed Missiles and Space Co.), R. J. Prozan (Lockheed Missiles and Space Co.), D. Seymour (Lockheed Missiles and Space Co.), and T. F. Greenwood (Lockheed Missiles and Space Co.)

Oct. 1972

M-FS-21414

Computer program has been developed as analytical tool to predict severity of effects of exhaust of rocket engines on adjacent spacecraft surfaces. Program computes forces, moments, pressures, and heating rates on surfaces immersed in or subjected to exhaust plume environments. Predictions will be useful in design of systems where such problems are anticipated.

B72-10602 PROGRAM FOR STANDARD STATISTICAL DISTRIBUTIONS

L. W. Falls

Oct. 1972

M-FS-21466

Development of procedure to describe frequency distributions involved in statistical theory is discussed. Representation of frequency distributions by first order differential equation is presented. Classification of various types of distributions based on Pearson parameters is analyzed.

B72-10604 INTERPLANETARY TRAJECTORIES, ENCKE METHOD (ITEM)

F. H. Whitlock, H. Wolfe (Anal. Mech. Associates, Inc.), L. Lefton (Anal. Mech. Associates, Inc.), and N. Levine (Anal. Mech. Associates, Inc.)

Oct. 1972

GSFC-11576

Modified program has been developed using improved variation of Encke method which avoids accumulation of round-off errors and avoids numerical ambiguities arising from near-circular orbits of low inclination. Variety of interplanetary trajectory problems can be computed with maximum accuracy and efficiency.

B72-10605 PROPULSION SIZING PROGRAM

T. A. Kaemming (McDonnell-Douglas Corp.) and A. E. Burns (McDonnell-Douglas Corp.)

Oct. 1972

MSC-14016

Computer program was written to evaluate and define optimum design parameters of low pressure auxiliary propulsion system. APS will provide attitude and translational control of space shuttle vehicles. Program evaluates subsystem design parameters such as engine chamber pressure, mixture ratio, expansion ratio, and subsystem component weight and size.

B72-10606 PROGRAM TO PRODUCE HORIZONTAL STEREOGRAPHIC PRINT MAPS FROM NIMBUS HRIR DATA

H. W. Powell (Programming Methods, Inc.)

Oct. 1972

GSFC-11397

Computer program is written to display Nimbus high resolution

infrared radiometer data in optimum form for experiment usage. Program produces three maps for Nimbus experimental data. Functions of program are to process data and prepare print maps from modified temperature measurements.

B72-10607 AUTOMATIC COMPUTER SUBPROGRAM SELECTION FROM APPLICATION-PROGRAM LIBRARIES - ALTLIB

J. M. Drozdowski

Oct. 1972

LANGLEY-11124

General purpose computer program for access and use of alternate library file with minimum programming effort by user is described. Manner in which program is implemented after determining external requirements is analyzed. Program was developed for use with CDC-6400 computer.

B72-10608 TWO AUTOWIRE VERSIONS FOR CDC-3200 AND IBM-360

J. B. Billingsley

Oct. 1972

GSFC-11526; GSFC-11539

Microelectronics program was initiated to evaluate circuitry, packaging methods, and fabrication approaches necessary to produce completely procured logic system. Two autowire programs were developed for CDC-3200 and IBM-360 computers for use in designing logic systems.

B72-10610 COMPUTER PROGRAM ANALYZES AND MONITORS ELECTRICAL POWER SYSTEMS (POSIMO)

K. Jaeger (Ges. fuer Weltraumforsch., Bonn)

Oct. 1972

GSFC-11505

Requirements to monitor and/or simulate electric power distribution, power balance, and charge budget are discussed. Computer program to analyze power system and generate set of characteristic power system data is described. Application to status indicators to denote different exclusive conditions is presented.

B72-10614 SPECTRAL ANALYSIS OF MULTIPLE TIME SERIES

M. R. Dubman (N. Am. Rockwell Corp.)

Oct. 1972

M-FS-18859

Application of spectral analysis for mathematically determining relationship of random vibrations in structures and concurrent events in electric circuits, physiology, economics, and seismograms is discussed. Computer program for performing spectral analysis of multiple time series is described.

B72-10618 VORTEX-LATTICE FORTRAN PROGRAM FOR ESTIMATING SUBSONIC AERODYNAMIC CHARACTERISTICS OF COMPLEX PLANFORMS

R. J. Margason and J. E. Lamar

Oct. 1972

LANGLEY-11047

Computer program for estimating subsonic aerodynamic characteristics of various aerodynamic configurations is presented. Program represents lifting planforms with vortex-lattice. Specific aerodynamic characteristics to be determined are described. Examples and typical running times of various types of configurations are provided.

B72-10619 SOURCE DECK COMPRESSION AND UPDATE PROGRAM (CAPS)

E. O. Merrill (Programming Methods, Inc.)

Oct. 1972

GSFC-11545

Computer program for compressing program source decks and other data coded in Hollerith format is described. Compression of card image record by substitution of special code characters

is discussed. Program is written for IBM 360/75/95 Release 19 computer.

B72-10620

GPEDIT

J. B. Dash (Computer Appl., Inc.)

Dec. 1972

GSFC-11308

GPEDIT compares each character in data record to corresponding character in mask provided by user. Mask indicates that alphabetic or numeric character is allowed or that blank or punctuation mark is anticipated. Mask can also indicate that any data character other than some invalid character is allowed.

B72-10621

WATER IMPACT LOADS

D. H. Sanders (McDonnell-Douglas Corp.) and S. G. Safronski (McDonnell-Douglas Corp.)

Oct. 1972

M-FS-21955

Computer program to generate time history of load factor and pressure on conical body of revolution during impact with water is discussed. Program calculates depth of penetration, velocity, force, load factor, maximum pressure at water line, and average pressure. Program is written in FORTRAN 4 Level. H for IBM 360/85/195 Release 20.1 computer.

B72-10622

METHOD FOR NONLINEAR EXPONENTIAL REGRESSION ANALYSIS

B. G. Junkin

Oct. 1972

M-FS-21965

Two computer programs developed according to two general types of exponential models for conducting nonlinear exponential regression analysis are described. Least squares procedure is used in which the nonlinear problem is linearized by expanding in a Taylor series. Program is written in FORTRAN 5 for the Univac 1108 computer.

B72-10623

FORTMAN MANPOWER ACCOUNT PROGRAM

J. N. Strand

Oct. 1972

NPO-11973

Computer program for determining manpower costs for full time, part time, and contractor personnel is discussed. Twelve different tables resulting from computer output are described. Program is written in FORTRAN 4 for IBM 360/65 computer.

B72-10624

COMPUTER PROGRAM TO GENERATE ATTITUDE ERROR EQUATIONS FOR A GIMBALLED PLATFORM

W. A. Hall, Jr. (IBM), T. D. Morris (IBM), and K. Y. Rone (IBM)

Oct. 1972

M-FS-21991

Computer program for solving attitude error equations related to gimballed platform is described. Program generates matrix elements of attitude error equations when initial matrices and trigonometric identities have been defined. Program is written for IBM 360 computer.

B72-10625

PROGRAM TO REDUCE THE SIZE OF STRUCTURAL MATRICES

H. W. Spurlin (N. Am. Rockwell Corp.) and R. Heckenlaible (N. Am. Rockwell Corp.)

Dec. 1972

MSC-17619

Computer program was developed to reduce both mass and stiffness matrices by eliminating degrees of freedom using Cholesky decomposition. Program is written in FORTRAN G or H for IBM 360 computer.

B72-10634

COMPUTER PROGRAM FOR AFTERHEAT TEMPERATURE

DISTRIBUTION FOR MOBILE NUCLEAR POWER PLANT

W. G. Parker (Westinghouse) and L. E. VanBibber (Westinghouse)

Dec. 1972

LEWIS-11693

ESATA computer program was developed to analyze thermal safety aspects of post-impacted mobile nuclear power plants. Program is written in FORTRAN 4 and designed for IBM 7094/7044 direct coupled system.

B72-10648

VIBRATIONAL TRANSFER FUNCTIONS FOR COMPLEX STRUCTURES

P. A. Jones (Martin Marietta Corp.) and R. L. Berry (Martin Marietta Corp.)

Oct. 1972

M-FS-20744

Evaluation of effects of vibrational multiple frequency forcing functions is discussed. Computer program for developing vibrational transfer functions is described. Possible applications of computer program are enumerated.

B72-10650

PROGRAM FOR CREATING AN OPERATING SYSTEM GENERATION CROSS REFERENCE INDEX (SGINDEX)

C. W. Barth

Oct. 1972

GSFC-11612

Computer program to collect key data from Stage Two input of OS/360 system and to prepare formatted listing of index entries collected is discussed. Program eliminates manual paging through system output by providing comprehensive cross reference.

B72-10656

ANALYTIC PROCEDURES FOR DETERMINING DIMENSIONAL REDUNDANCIES IN ELECTRONIC DEVICES

G. J. Herskowitz (Stevens Inst. of Tech.)

Oct. 1972

HQ-10709

Methods for ascertaining dimensional redundancies in mathematical functions related to electronic phenomena and for removal of redundancies are presented. Two computer programs, one to determine a complete B-matrix and the other to optimize the matrix, are discussed. Three subroutines are analyzed.

B72-10667

NUMERICAL SOLUTION OF POTENTIAL FLOW PROBLEMS IN TERMS OF FLUX COMPONENTS

D. U. VonRosenberg (Tulane Univ.)

Dec. 1972

M-FS-21751

Numerical determination of flux components in vapor flow considers split boundary conditions in both directions to form grid lines for flow continuity equations. Matrix of coefficients obtains direct solution for potential flow problem without iteration.

B72-10671

A LINEAR PROGRAMMING MANUAL

R. C. Tvey (Informatics TISCO, Inc.)

Dec. 1972

HQ-10743

Computer solutions of linear programming problems are outlined. Information covers vector spaces, convex sets, and matrix algebra elements for solving simultaneous linear equations. Dual problems, reduced cost analysis, ranges, and error analysis are illustrated.

B72-10674

GEOMETRIC FIELD-LINE CALCULATIONS

E. G. Stassinopoulos and G. D. Mead

Oct. 1972

GSFC-11597

Procedure for calculating three components of vector field from spherical harmonic using either geocentric or geodetic coordinates as input and output is described. Three subroutines

09 COMPUTER PROGRAMS

of computer program are explained. Program is written in FORTRAN for IBM 360 computer.

B72-10675

MATHEMATICAL ANALYSIS FOR THE PERFORMANCE ASSESSMENT OF SPACE COMMUNICATION PARAMETERS, IBM-360 VERSION

L. Grayson (Computer Sci. Corp.)

Dec. 1972

GSFC-11523

Development of equations to determine communication capability of pulse or digital transmission link is discussed. Equation specifies probability detection error for one-way transmission. Analysis is conducted on IBM 360 computer using FORTRAN 4.

B72-10676

INTEGRATED MULTI-PATH PROGRAM ANALYSIS AND COST TECHNIQUE (IMPACT)

O. Sullivan

Dec. 1972

M-FS-21880

SDS-930 computer determines impact cost-decision value at any chronological point in definition phase of multiprogram project. Options, option combinations, and different displays are listed. Graphical procedure was chosen as best method for project.

B72-10718

COMPUTER PROGRAM FOR CALCULATION OF COMPLEX CHEMICAL EQUILIBRIUM COMPOSITIONS

S. Gordon and B. J. McBride

Dec. 1972

LEWIS-11714; LEWIS-11740

Computer program is described for numerical solution of chemical equilibria in complex systems by using nonlinear algebraic equations. Free-energy minimization technique is used.

B72-10721

CHRYSLER IMPROVED NUMERICAL DIFFERENCING ANALYZER FOR THIRD GENERATION COMPUTERS CINDA-3G

J. D. Gaski (Chrysler Corp.), D. R. Lewis (Chrysler Corp.), and L. R. Thompson (Chrysler Corp.)

Dec. 1972 See also B67-10278

MSC-11653

New and versatile method has been developed to supplement or replace use of original CINDA thermal analyzer program in order to take advantage of improved systems software and machine speeds of third generation computers. CINDA-3G program options offer variety of methods for solution of thermal analog models presented in network format.

B72-10726

OPTIMIZING DESIGNS OF TWO-LEVEL FACTORIAL EXPERIMENTS GIVEN PARTIAL PRIOR INFORMATION (NAMER)

S. M. Sidik

Dec. 1972

LEWIS-11708

NAMER is used to find Bayes procedure for designing two level, fractional factorial experiments when given partial prior information. Program is written in FORTRAN 4 for IBM 7094 computer.

B72-10736

SINDA, SYSTEMS IMPROVED NUMERICAL DIFFERENCING ANALYZER

L. C. Fink (TRW Systems Group), H. M. -Y. Pan (TRW Systems Group), and T. Ishimoto (TRW Systems Group)

Dec. 1972

MSC-13805

Computer program has been written to analyze group of 100-node areas and then provide for summation of any number of 100-node areas to obtain temperature profile. SINDA program options offer user variety of methods for solution of thermal analog modes presented in network format.

B72-10739

AEROTHERM CHEMICAL EQUILIBRIUM (ACE) COMPUTER PROGRAM

C. A. Powars (Aerotherm Corp.) and R. M. Kendall (Aerotherm Corp.)

Dec. 1972

LEWIS-11722

Computer code was developed for calculating chemical quantities and qualities in equilibrium.

B72-10747

THREE BIT MASS SPECTRAL SEARCH PROGRAM

S. L. Grotch

Dec. 1972

NPO-11960

Computer program is developed to interpret spectral data in order to assist chemist in identifying low resolution mass spectra. Two versions of program, using approximately same amount of core, are available. In both programs, core requirements are roughly proportional to maximum number of unknowns to be handled on each pass through tape.

B72-10750

FORTAN READ PACKAGE

D. P. Diekelman (McDonnell-Douglas Corp.)

Dec. 1972

MSC-14161

Flexible input schemes for digital programs are described. No card format or special order of cards is required. Read package is controlled by small set of parameters which can be changed to account for differences in computers and digital programs.

B72-10753

FORTAN PROGRAM FOR GENERATING A TWO-DIMENSIONAL ORTHOGONAL MESH BETWEEN TWO ARBITRARY BOUNDARIES

W. D. McNally

Dec. 1972

LEWIS-11863

Computer program is described which computes and plots coordinates for two-dimensional orthogonal mesh for channel containing solid body, about which flow passes and which spans channel from one wall to the other.

SUBJECT INDEX

Index to NASA Tech Briefs

Issue 13

Subject Index

The title of each Tech Brief is listed under several selected subject headings to provide the user with a variety of approaches in his search for specific information. The Tech Brief number, e.g., B72-10097, is located under and to the right of the title and is followed by a two-digit number, e.g., 04, which designates the subject category in which the entire entry can be found.

A

ABLATION

Program for the transient response of ablating axisymmetric bodies including the effects of shape change

LANGLEY-11049 B72-10068 09

ABLATIVE MATERIALS

Program for the transient response of ablating axisymmetric bodies including the effects of shape change

LANGLEY-11049 B72-10068 09

Chemical modification of poly(p-phenylene) for use in ablative compositions

ARC-10135 B72-10451 04

ABNORMALITIES

Simple non-destructive tests for electroexplosive devices

NPO-11563 B72-10315 01

ABRASION

High strength, medium density molded foam

AEC-10053 B72-10235 04

Polishing is made cheaper by disposable diamond-impregnated abrasive cloth

MSC-14247 B72-10616 08

ABRASION RESISTANCE

Sheet plastic filters for solar cells

NPO-11464 B72-10090 04

Nonflammable and abrasion resistant coating process for glass fibers

MSC-14024 B72-10445 08

ABRASIVES

Sintered diamond compacts using metallic cobalt binders

HQ-10706 B72-10519 04

ABSORBENTS

Comparison of catalyst activity

ARC-10493 B72-10201 04

Solid amine compounds as sorbents for carbon dioxide: A concept

ARC-10571 B72-10421 04

ABSORBERS (MATERIALS)

Solid amine compounds as sorbents for carbon dioxide: A concept

ARC-10571 B72-10421 04

ABSORPTION

Space-suit carbon dioxide absorption system: A concept

ARC-10546 B72-10168 05

Nondispersive infrared analyzer for specific gases in complex mixtures

ARC-10308 B72-10198 03

Carbon dioxide concentration indicator

HQ-10582 B72-10526 05

Improved sampling of compressed gases for condensable hydrocarbon content

KSC-10304 B72-10540 06

ABSORPTION SPECTRA

Direct analysis of hydrogen/deuterium mixtures: A concept

NPO-11322 B72-10244 03

An absorption spectrum amplifier for determining gas composition

HQ-10752 B72-10524 03

ABSORPTION SPECTROSCOPY

An absorption spectrum amplifier for determining gas composition

HQ-10752 B72-10524 03

ABSORPTIVITY

Water purification by reverse osmosis using heterocyclic polymer membranes

LANGLEY-10514 B72-10230 04

Measurement of electron density and temperature in plasmas

ARC-10598 B72-10563 03

ACCELERATION (PHYSICS)

Balanced-bellows spirometer

XAC-01547 B72-10279 05

Linear accelerator: A concept

KSC-10618 B72-10636 06

ACCELERATION PROTECTION

Peak acceleration limiter

NPO-10556 B72-10007 01

ACCELEROMETERS

Control of acceleration in sine/random vibration tests

NPO-11482 B72-10091 02

Inertial reference unit

NPO-11518 B72-10094 02

Gravitational gradiometer measures mass changes

M-FS-20814 B72-10140 03

ACCIDENT PREVENTION

High voltage protection network

ARC-10197 B72-10119 02

Technical management techniques for identification and control of industrial safety and pollution hazards

M-FS-21883 B72-10588 05

Seat belt restraint system

ARC-10519 B72-10692 06

ACCUMULATORS

Coaxial inverted geometry epitaxial transistor

ARC-10330 B72-10056 01

Flexible desk top computers using Large Scale Integration (L.S.I.) chips

M-FS-21277 B72-10112 01

High efficiency collector for microwave tubes

LEWIS-11192 B72-10259 03

ACCURACY

Improved laboratory gradiometer can be a field survey instrument

MSC-13980 B72-10001 03

Third order digital-to-analog converter

MSC-12458 B72-10030 02

Low temperature scale for a 1 to 20 degree Kelvin region

AEC-10007 B72-10146 03

Snap dynamics

M-FS-21531 B72-10265 09

Small turbine-type flowmeters for liquid hydrogen

LEWIS-11535 B72-10331 06

Precision machining of steel

decahedrons

M-FS-21361 B72-10597 07

Magnetometer uses bismuth-selenide

LEWIS-11632 B72-10629 03

ACETATES

Water purification by reverse osmosis using heterocyclic polymer membranes

LANGLEY-10514 B72-10230 04

ACETIC ACID

Covalent bonding of antibodies of polystyrene latex beads: A concept

MSC-13906 B72-10006 05

ACETONE

Promotion of dropwise condensation of ethyl alcohol, methyl alcohol, and acetone by polytetrafluoroethylene

LANGLEY-10940 B72-10115 04

ACIDS

New type of trifunctional alcohol

NPO-10714 B72-10553 04

ACOUSTIC EXCITATION

Response of a panel structure to reverberant acoustic excitation

M-FS-21774 B72-10603 06

ACOUSTIC MEASUREMENTS

Acoustic spectral analysis and testing techniques

NPO-11554 B72-10341 03

Acoustic emission used as weld quality monitor

AEC-10018 B72-10427 08

Acoustical analysis system

GSFC-11087 B72-10751 02

Automated analysis of blood pressure measurements (Korotkov sound)

MSC-13999 B72-10756 05

ACOUSTIC PROPERTIES

Improved audio reproduction system

ARC-10404 B72-10059 01

ACOUSTIC VELOCITY

Continuous monitor for gas ratios in a mixture

LEWIS-11095 872-10229 05

ACOUSTICS

Reduction of fan noise: A concept

ARC-10312 872-10040 06

Quick release acoustic sensor holding fixture

MSC-17457 872-10076 02

Low temperature scale for a 1 to 20 degree Kelvin region

AEC-10007 872-10146 03

Evaluation of jet engine noise

M-FS-21416 872-10263 03

Acoustic spectral analysis and testing techniques

NPO-11554 872-10341 03

ACOUSTO-OPTICS

Acousto-optic filter for electronic laser tuning

HQ-10715 872-10520 03

ACRYLIC RESINS

Strengthening lightweight concrete

AEC-10017 872-10430 04

ACRYLONITRILES

Fire retardant polyisocyanurate foam

ARC-10280 872-10269 04

ACTIVITY (BIOLOGY)

A process yields large quantities of pure ribosome subunits

HQ-10662 872-10653 05

ACTUATION

Ferromagnetic-fluid logic devices

ARC-10503 872-10011 06

ACTUATORS

Propellant-powered actuator for gas generators

ARC-10484 872-10008 03

Electrodynamical actuators for rocket engine valves

ARC-10486 872-10009 06

Hermetic isolation valves

ARC-10505 872-10013 06

A hybrid electromechanical solid state switch for ac power control

MSC-14005 872-10018 02

Beryllium thin films for resistor applications

ARC-10485 872-10021 01

Piezoelectric actuator uses sequentially-excited multiple elements: A concept

NPO-11527 872-10096 01

Squib-actuated disconnect device

NPO-11544 872-10097 06

Ball detent mechanism

M-FS-21735 872-10470 07

ADAPTERS

Hand-held photomicroscopy system

ARC-10468 872-10190 03

ADAPTIVE CONTROL

Adaptive position control loop

ARC-10255 872-10052 02

Automatic water inventory, collecting, and dispensing unit

LANGLEY-11071 872-10663 06

ADDING CIRCUITS

Topological solution of bilateral switching networks

ARC-10294 872-10055 01

ADDITIVES

Stabilization of lactate dehydrogenase

ARC-10415 872-10062 05

Halogenation of microcapsule walls

ARC-10410 872-10161 04

Magnetic-doped alloys with very large

Seebeck coefficients

M-FS-21410 872-10318 04

Gate protective device for SOS array

HQ-10745 872-10755 01

ADENOSINE TRIPHOSPHATE (ATP)

A reusable prepositioned ATP reaction chamber

HQ-10660 872-10525 05

ADHESION

Adhesion theory review

AEC-10083 872-10231 04

High strength, medium density molded foam

AEC-10053 872-10235 04

Development of a polyimide for use as a temperature and solvent resistant sealant

M-FS-21325 872-10262 04

ADHESIVE BONDING

Use of thin plastic films at cryogenic temperatures

LEWIS-11047 872-10038 04

Quick release acoustic sensor holding fixture

MSC-17457 872-10076 02

Adhesion theory review

AEC-10083 872-10231 04

Improved electrical spot terminals

NPO-10034 872-10492 01

ADHESIVES

Optical bonding agents for severe environments

ARC-10459 872-10063 04

New polyimide polymer has excellent processing characteristics with improved thermo-oxidative and hydrolytic stabilities

LEWIS-11323 872-10175 04

Overlay board for control consoles

ARC-10007 872-10191 02

A new vibration dampening adhesive

MSC-17668 872-10284 04

Synthesis of temperature and solvent-resistant polymers

M-FS-20848 872-10342 04

Adhesive for aluminum withstands cryogenic temperatures

M-FS-16848 872-10346 04

Improved electrical spot terminals

NPO-10034 872-10492 01

Thermocouple tape

LEWIS-11072 872-10515 04

A monostrain test apparatus

M-FS-24221 872-10679 06

ADIABATIC FLOW

Program to determine radiating, nonadiabatic, inviscid flow over a blunt body by the method of integral relations

LANGLEY-11048 872-10067 09

ADJUSTING

Adjustable locking device

M-FS-21650 872-10459 07

No-err typing aids

M-FS-15218 872-10498 07

ADSORPTION

Direct analysis of hydrogen/deuterium mixtures: A concept

NPO-11322 872-10244 03

AERIAL RECONNAISSANCE

A rapid, precise, reciprocating-movement color filter system

GSFC-11255 872-10497 07

Assessment of water pollution by airborne measurement of chlorophyll

ARC-10648 872-10566 04

AERODYNAMIC BRAKES

Integrated flight controller for light aircraft

ARC-10456 872-10213 06

AERODYNAMIC CHARACTERISTICS

Prediction of ducted fan performance

ARC-10615 872-10064 09

Slot configuration for axial-flow turbomachinery blades

LEWIS-11572 872-10484 07

Response of a panel structure to reverberant acoustic excitation

M-FS-21774 872-10603 06

Vortex-lattice FORTRAN program for estimating subsonic aerodynamic characteristics of complex planforms

LANGLEY-11047 872-10618 09

AERODYNAMIC COEFFICIENTS

Vortex-lattice FORTRAN program for estimating subsonic aerodynamic characteristics of complex planforms

LANGLEY-11047 872-10618 09

AERODYNAMIC CONFIGURATIONS

FORTRAN program for computing coordinates of circular-arc, single and tandem, turbine and compressor, blade sections on a plane

LEWIS-11237 872-10405 09

Vortex-lattice FORTRAN program for estimating subsonic aerodynamic characteristics of complex planforms

LANGLEY-11047 872-10618 09

Ejector nozzle with massive blowing

ARC-10621 872-10693 06

AERODYNAMIC DRAG

Misfit and miss-drag programs

LANGLEY-10932 872-10153 09

AERODYNAMIC FORCES

Wind tunnel buffet load measuring technique

ARC-10495 872-10022 06

Integrated flight controller for light aircraft

ARC-10456 872-10213 06

AERODYNAMIC HEAT TRANSFER

Technique for producing wind-tunnel heat-transfer models

ARC-10658 872-10349 08

AERODYNAMIC LOADS

Misfit and miss-drag programs

LANGLEY-10932 872-10153 09

AERODYNAMIC STABILITY

Pressure-probe assembly for wind tunnels

ARC-10569 872-10248 03

AERODYNAMICS

Sensitive holographic detection of small aerodynamic perturbations

ARC-10422 872-10209 03

AEROSOLS

Fluidized-bed combustion reduces atmospheric pollutants

AEC-10085 872-10431 04

Analysis of microsize particulates

ARC-10647 872-10565 04

AEROSPACE ENGINEERING

Reliability analysis based on operational success criteria

ARC-10490 872-10214 09

Guidelines for fabrication of hybrid microcircuits

M-FS-21964 872-10393 01

AEROSPACE ENVIRONMENTS

Optical bonding agents for severe environments

ARC-10459 872-10063 04

- Composite casting demonstration
M-FS-21668 72-10266 04
Investigation of environmental effects
on coatings for thermal control
M-FS-21932 72-10596 04
- AEROSPACE SYSTEMS**
Specification guidelines for hybrid
microcircuits
M-FS-22090 72-10474 01
- AEROSPACE VEHICLES**
Fabrication of carbon film composites
for high-strength structures
ARC-10613 72-10423 04
- AEROTHERMODYNAMICS**
Variable boundary II heat conduction
LEWIS-10679 72-10444 09
- AGGLOMERATION**
Plasma calcining of pigment particles
for thermal control coatings
M-FS-21267 72-10320 04
- AGGREGATES**
Strengthening lightweight concrete
AEC-10017 72-10430 04
- AGING (MATERIALS)**
Failure in glass
AEC-10088 72-10364 04
- AIR**
Long-term drift of thermocouples at
1600 K
LEWIS-11471 72-10176 01
Balanced-bellows spirometer
XAC-01547 72-10279 05
Simple turbine balancing test
apparatus
LEWIS-11658 72-10377 07
Low frequency sinusoidal pressure
generator
LEWIS-11465 72-10477 01
Metabolic simulation chamber
HQ-10776 72-10658 05
- AIR CONDITIONING EQUIPMENT**
Automatic air flow control in air
conditioning ducts
GSFC-11445 72-10490 06
- AIR COOLING**
Turbulent mixing film cooling
correlation
LEWIS-11417 72-10326 07
- AIR DUCTS**
Automatic air flow control in air
conditioning ducts
GSFC-11445 72-10490 06
- AIR FILTERS**
Filter cassette for high volume air
sampler
LEWIS-11469 72-10379 03
- AIR FLOW**
Reduction of fan noise: A concept
ARC-10312 72-10040 06
Airflow distribution control for improved
turbine engine performance
LEWIS-11593 72-10178 07
Turbulent mixing film cooling
correlation
LEWIS-11417 72-10326 07
Expandable coating cocoon leak detec-
tion system
M-FS-21848 72-10380 06
Slot configuration for axial-flow turbo-
machinery blades
LEWIS-11572 72-10484 07
Automatic air flow control in air
conditioning ducts
GSFC-11445 72-10490 06
Indexing film with a fluidic sensor
MSC-14117 72-10501 02
- Ejector nozzle with massive blowing
ARC-10621 72-10693 06
- AIR NAVIGATION**
Computer program to generate attitude
error equations for a gimbal platform
M-FS-21991 72-10624 09
- AIR POLLUTION**
Urban air pollution dispersion model
AEC-10004 72-10003 03
Wind trajectory tracing for air pollution
studies (AIRPOL)
NPO-11892 72-10072 09
Fluidic systems may improve combus-
tion in automotive engines
ARC-10582 72-10250 06
Filter cassette for high volume air
sampler
LEWIS-11469 72-10379 03
Fluidized-bed combustion reduces at-
mospheric pollutants
AEC-10085 72-10431 04
Air assist fuel nozzle reduces aircraft
gas turbine engine emissions at idle
operation
LEWIS-11512 72-10434 07
Analysis of microsize particulates
ARC-10647 72-10565 04
Technical management techniques for
identification and control of industrial
safety and pollution hazards
M-FS-21883 72-10588 05
- AIR PURIFICATION**
Carbon dioxide concentrator
ARC-10245 72-10194 05
Hydrogen eliminator
ARC-10408 72-10208 03
- AIR SAMPLING**
Filter cassette for high volume air
sampler
LEWIS-11469 72-10379 03
- AIR TRAFFIC**
Aircraft communication via telefacsimile
system
M-FS-20839 72-10139 02
- AIR TRAFFIC CONTROL**
Aircraft communication via telefacsimile
system
M-FS-20839 72-10139 02
- AIRCRAFT**
Solid amine compounds as sorbents
for carbon dioxide: A concept
ARC-10571 72-10421 04
- AIRCRAFT ACCIDENTS**
Integrated flight controller for light
aircraft
ARC-10456 72-10213 06
- AIRCRAFT COMMUNICATION**
Aircraft communication via telefacsimile
system
M-FS-20839 72-10139 02
- AIRCRAFT COMPARTMENTS**
Counter lung
ARC-10248 72-10219 05
- AIRCRAFT CONFIGURATIONS**
Misfit and miss-drag programs
LANGLEY-10932 72-10153 09
- AIRCRAFT CONTROL**
Aircraft communication via telefacsimile
system
M-FS-20839 72-10139 02
- AIRCRAFT DESIGN**
Misfit and miss-drag programs
LANGLEY-10932 72-10153 09
- AIRCRAFT ENGINES**
Airflow distribution control for improved
turbine engine performance
LEWIS-11593 72-10178 07
- AIRCRAFT EQUIPMENT**
Survey of aircraft electrical power
systems
LEWIS-11678 72-10383 02
- AIRCRAFT FUEL SYSTEMS**
Internal capillary insulation for cryogenic
tanks
LEWIS-11234 72-10626 06
- AIRCRAFT INSTRUMENTS**
Roll function in a flight simulator
ARC-10557 72-10417 02
- AIRCRAFT PILOTS**
Integrated flight controller for light
aircraft
ARC-10456 72-10213 06
- AIRCRAFT STRUCTURES**
FORTRAN program for computing
coordinates of circular-arc, single and
tandem, turbine and compressor, blade
sections on a plane
LEWIS-11237 72-10405 09
- AIRFOIL PROFILES**
FORTRAN program for computing
coordinates of circular-arc, single and
tandem, turbine and compressor, blade
sections on a plane
LEWIS-11237 72-10405 09
- AIRFRAMES**
Fabrication of carbon film composites
for high-strength structures
ARC-10613 72-10423 04
- AIRLOCK MODULES**
Airlock caution and warning system
M-FS-21576 72-10467 02
- AIRPORTS**
Automatic lightning location system
AEC-10077 72-10372 02
- ALBUMINS**
Stabilization of lactate dehydrogenase
ARC-10415 72-10062 05
- ALCOHOLS**
New type of trifunctional alcohol
NPO-10714 72-10553 04
- ALGAE**
Assessment of water pollution by
airborne measurement of chlorophyll
ARC-10648 72-10566 04
- ALGORITHMS**
Algorithm for Liapunov stability
analysis
ARC-10498 72-10023 09
Techniques for improving reliability of
computers
M-FS-21326 72-10109 02
High speed sequential decoder
ARC-10657 72-10568 09
Automatic computer subprogram selec-
tion from application-program libraries -
ALTLIB
LANGLEY-11124 72-10607 09
Optimizing designs of two-level factorial
experiments given partial prior information
(NAMER)
LEWIS-11708 72-10726 09
- ALIGNMENT**
Optical alignment of electrodes on
electrical discharge machines
XAC-09489 72-10036 07
Three-point compound sine plate offers
cost and weight savings
MSC-15818 72-10118 07
No-err typing aids
M-FS-15218 72-10498 07
Improved optical filters for automated
visual inspection
HQ-10720 72-10521 03

- Precision machining of steel
decahedrons
M-FS-21361 872-10597 07
- ALKALI METALS**
Oxygen plasmas used to synthesize superoxides
ARC-10686 872-10570 04
- ALKALINE BATTERIES**
Electrodes for sealed secondary batteries
ARC-10238 872-10050 02
- ALKALINE EARTH OXIDES**
Prevention of cathode damage from positive ion bombardment
HQ-10688 872-10654 03
- ALLOYS**
An empirical relationship for the penetration of 1 to 3 MeV electrons
LEWIS-11495 872-10144 04
Magnetic-doped alloys with very large Seebeck coefficients
M-FS-21410 872-10318 04
- ALLYL COMPOUNDS**
Reverse-osmosis membranes by plasma polymerization
ARC-10696 872-10710 04
- ALTERNATING CURRENT**
A hybrid electromechanical solid state switch for ac power control
MSC-14005 872-10018 02
Lightweight, broad-band spectrum analyzer
ARC-10405 872-10060 01
Continuous monitor for gas ratios in a mixture
LEWIS-11095 872-10229 05
Alternating current losses in superconducting coils
M-FS-21129 872-10360 03
Novel dielectric reduces corona breakdown in ac capacitors
M-FS-21486 872-10505 01
- ALTITUDE SIMULATION**
Continuous-flow variable-density wind tunnel facilities
NPO-11287 872-10078 06
- ALUMINUM**
Small-scale explosive welding of aluminum
LANGLEY-10941 872-10002 04
Solenoid-operated swing-check valve
XAC-10048 872-10037 06
Aluminum foil interconnects for solar cell panels
ARC-10374 872-10058 08
Optical bonding agents for severe environments
ARC-10459 872-10063 04
Quick release acoustic sensor holding fixture
MSC-17457 872-10076 02
Improved method for producing metal-reinforced ceramics
AEC-10070 872-10234 04
Explosive cord
M-FS-21928 872-10293 08
Ion plating seals microcracks or porous metal components
LEWIS-11657 872-10397 04
High intensity solar cell radiometer
LEWIS-11549 872-10480 01
Sputter etching of hemispherical bearings
HQ-10712 872-10534 08
High strength high modulus ceramic fiber
M-FS-21266 872-10592 04
- Improved electrodes for skin contacts
M-FS-21926 872-10698 05
Thin-film ultraviolet detector and spectrometer
NPO-11432 872-10701 03
Reduction of porosity in aluminum weldments
MSC-14198 872-10734 08
- ALUMINUM ALLOYS**
Small-scale explosive welding of aluminum
LANGLEY-10941 872-10002 04
Advanced protective coating for superalloys
LEWIS-11473 872-10150 04
Analysis of thermal stress and metal movement during welding
M-FS-20984 872-10333 04
Strain gage attachment by spot welding reduces the fatigue strength of Ti-6Al-4V, Rene 41, and Inconel X
LANGLEY-10930 872-10339 04
Adhesive for aluminum withstands cryogenic temperatures
M-FS-16848 872-10346 04
Boron aluminum composite structures
M-FS-21571 872-10386 04
- ALUMINUM CHLORIDES**
Stabilization of porous glass reverse-osmosis membranes
ARC-10646 872-10309 04
Chemical modification of poly(p-phenylene) for use in ablative compositions
ARC-10135 872-10451 04
Al/Cl₂ molten salt battery
HQ-10696 872-10527 01
- ALUMINUM COATINGS**
Superior cryogenic insulation developed
M-FS-21560 872-10187 04
- ALUMINUM COMPOUNDS**
Electron beam chemistry produces high purity metals
LEWIS-11639 872-10439 04
A visual-display and storage device
GSFC-10901 872-10647 02
Boron-10 loaded inorganic shielding material
M-FS-22280 872-10740 04
- ALUMINUM FLUORIDES**
Improved elastomer for use with oxygen difluoride
ARC-10528 872-10027 04
- ALUMINUM NITRIDES**
Aluminum nitride insulating films for MOSFET devices
NPO-11859 872-10425 04
Thin-film ultraviolet detector and spectrometer
NPO-11432 872-10701 03
- ALUMINUM OXIDES**
Beryllium thin films for resistor applications
ARC-10485 872-10021 01
Improved elastomer for use with oxygen difluoride
ARC-10528 872-10027 04
Low temperature catalytic ignition of hydrogen and oxygen
ARC-10492 872-10127 03
Long-term drift of thermocouples at 1600 K
LEWIS-11471 872-10176 01
Improved high voltage insulator for use in vacuum
LEWIS-11401 872-10181 01
- Floating zone process for drawing small diameter fibers of refractory materials
LEWIS-11380 872-10491 04
Development of chip passivated monolithic complementary MISFET circuits with beam leads
M-FS-22264 872-10696 01
- AMBIENCE**
Aircrew oxygen system
ARC-10247 872-10195 05
Counter lung
ARC-10248 872-10219 05
- AMBIENT TEMPERATURE**
Temperature compensation of light-emitting diodes
ARC-10467 872-10218 01
High strength alloy for immediate temperature, 24 to 704 C (75 to 1300 F), applications
LEWIS-11634 872-10344 04
Accurate measurement of gas volumes by liquid displacement
ARC-10723 872-10699 03
- AMINES**
Halogenation of microcapsule walls
ARC-10410 872-10161 04
Fire retardant polyisocyanurate foam
ARC-10280 872-10269 04
Solid amine compounds, as sorbents for carbon dioxide: A concept
ARC-10571 872-10421 04
Reverse-osmosis membranes by plasma polymerization
ARC-10696 872-10710 04
- AMMONIUM COMPOUNDS**
Low temperature scale for a 1 to 20 degree Kelvin region
AEC-10007 872-10146 03
Initiation of polymerization by tetrabutylammonium p-lithiophenoxide
ARC-10553 872-10223 04
Silver stain for electron microscopy
ARC-10661 872-10415 05
Radiation-induced nickel deposits
LEWIS-10965 872-10456 04
- AMMONIUM PHOSPHATES**
Nonflammable potting, encapsulating and/or conformal coating compound
MSC-13499 872-10337 04
- AMMUNITION**
A four-panel enclosure protects from explosion
M-FS-21847 872-10613 06
- AMORPHOUS MATERIALS**
Photoemissive coating
M-FS-22003 872-10638 08
- AMPLIFICATION**
Circuit permits independent adjustment of gain and offset at constant input impedance
ARC-10348 872-10057 01
Differential input preamplifier
ARC-10489 872-10165 01
Vidicon storage tube electrical input/output
MSC-14053 872-10285 02
A sonic transducer to detect fluid leaks
KSC-10704 872-10376 01
- AMPLIFIER DESIGN**
Low distortion automatic phase control circuit
M-FS-21671 872-10682 02
- AMPLIFIERS**
Solar experiment alignment system
ARC-10471 872-10020 03

SUBJECT INDEX

Implanted telemeter for electrocardiogram and body temperature
XAC-08505 B72-10035 05
Circuit permits independent adjustment of gain and offset at constant input impedance
ARC-10348 B72-10057 01
Nematic liquid crystals for optical shutters: A concept
NPO-11367 B72-10083 03
Gas leak-detection system
NPO-11405 B72-10087 03
Control of acceleration in sine/random vibration tests
NPO-11482 B72-10091 02
Soldering iron temperature indicator
NPO-11545 B72-10098 02
Arc protection system for high-power RF amplifiers
NPO-11560 B72-10099 02
Temperature compensation of light-emitting diodes
ARC-10467 B72-10218 01
Vidicon storage tube electrical input/output
MSC-14053 B72-10285 02
A compact spectroradiometer for solar simulator measurements
HQ-10683 B72-10327 03
Amplifier for signal from thin film transducer
LEWIS-11494 B72-10463 01
A Compton scatter attenuation gamma ray spectrometer
M-FS-21441 B72-10487 03
Universal dc signal conditioner
MSC-17526 B72-10510 02
An absorption spectrum amplifier for determining gas composition
HQ-10752 B72-10524 03
Electronic integrator for gyro rate output voltages
NPO-11499 B72-10555 01

AMPLITUDES
Improved audio reproduction system
ARC-10404 B72-10059 01
Lightweight, broad-band spectrum analyzer
ARC-10405 B72-10060 01
Selecting digital filters
M-FS-20933 B72-10156 01
Prolate spheroidal slosh model for fluid motion
MSC-13864 B72-10182 09
Wide-range dynamic pressure sensor
ARC-10263 B72-10196 03
Sensitive holographic detection of small aerodynamic perturbations
ARC-10422 B72-10209 03
Composite mobile system for holographic nondestructive testing
M-FS-21704 B72-10351 03
Amplifier for signal from thin film transducer
LEWIS-11494 B72-10463 01
Low frequency sinusoidal pressure generator
LEWIS-11465 B72-10477 01
Computer method for identification of boiler transfer functions
LEWIS-11808 B72-10582 09

AMPOULES
Glass technology involved in the manufacture of magnetometer components
GSFC-11283 B72-10132 03

ANALOG CIRCUITS

Analog table look-up device identifies unknown terrain
MSC-13816 B72-10033 03

ANALOG COMPUTERS

Overlay board for control consoles
ARC-10007 B72-10191 02
A continuous physiological data collector
M-FS-20835 B72-10402 05

ANALOG DATA

Analog table look-up device identifies unknown terrain
MSC-13816 B72-10033 03
Technique minimizes the effects of dropouts on telemetry records
NPO-11421 B72-10088 02
Electronic integrator for gyro rate output voltages
NPO-11499 B72-10555 01

ANALOG SIMULATION

Third order digital-to-analog converter
MSC-12458 B72-10030 02

ANALOG TO DIGITAL CONVERTERS

Solid state television camera has no imaging tube
M-FS-21553 B72-10254 02
A simple dead-reckoning navigational system
M-FS-21165 B72-10409 02
An improved data transfer and storage technique for hybrid computation
M-FS-22043 B72-10680 02
Frequency-to-amplitude converter: A concept
MSC-12395 B72-10729 01

ANALOGS

FORTTRAN program for generating a two-dimensional orthogonal mesh between two arbitrary boundaries
LEWIS-11863 B72-10753 09

ANALYSIS (MATHEMATICS)

Indefinite integrals of products of some exponential and trigonometric functions
LEWIS-11493 B72-10225 09
Prediction of flow-induced failures of braided flexible hoses and bellows
M-FS-19004 B72-10407 06
Roll function in a flight simulator
ARC-10557 B72-10417 02

ANALYZERS

Nondispersive infrared analyzer for specific gases in complex mixtures
ARC-10308 B72-10198 03

ANGLE OF ATTACK

Mislift and miss-drag programs
LANGLEY-10932 B72-10153 09

ANGLES (GEOMETRY)

Sensitive holographic detection of small aerodynamic perturbations
ARC-10422 B72-10209 03
An improved apochromatic wedge utilizing optical molecular contact bonding
GSFC-11082 B72-10388 03

ANGULAR ACCELERATION

Angular velocity and acceleration meter
LEWIS-11466 B72-10183 06

ANGULAR DISTRIBUTION

Redirecting electromagnetic beams through wide angles
ARC-10602 B72-10307 03

ANGULAR VELOCITY

Angular velocity and acceleration meter
LEWIS-11466 B72-10183 06

ANTIFRICTION BEARINGS

Redirecting electromagnetic beams through wide angles
ARC-10602 B72-10307 03

ANILINE

A stable liquid crystal for electro-optical displays
HQ-10714 B72-10746 04

ANIMALS

Implanted telemeter for electrocardiogram and body temperature
XAC-08505 B72-10035 05
Programmed physiological infusion system
ARC-10447 B72-10126 05
Real-time pair-feeding of animals
ARC-10302 B72-10298 05
An efficient, simple dialyzer
HQ-10741 B72-10522 05
A thermocouple thermode for small animals
ARC-10550 B72-10559 05

ANNEALING

Proposed semiconductor film improvement
HQ-10685 B72-10438 04

ANNULAR PLATES

Annular objective apertures improve resolution of electron microscopes
ARC-10448 B72-10171 03

ANODES

A liquid radiation detector with high spatial resolution
MSC-13965 B72-10034 03
Electrodes for sealed secondary batteries
ARC-10238 B72-10050 02
High-temperature, long-life thyratron
LEWIS-11327 B72-10134 01
Cell for electrolysis of water vapor
ARC-10521 B72-10166 03
Silver-chlorine fuel cell: A concept
ARC-10491 B72-10221 03
Improved high-performance shock tube
NPO-11885 B72-10242 03
Ion plating seals microcracks or porous metal components
LEWIS-11657 B72-10397 04
Al/Ci2 molten salt battery
HQ-10696 B72-10527 01

ANTENNA ARRAYS

Redirecting electromagnetic beams through wide angles
ARC-10602 B72-10307 03

ANTENNAS

Implanted telemeter for electrocardiogram and body temperature
XAC-08505 B72-10035 05
Deep space network
NPO-11562 B72-10043 01
Remote measurement of the water content of snowpacks
ARC-10651 B72-10567 03

ANTIBODIES

Covalent bonding of antibodies of polystyrene latex beads: A concept
MSC-13906 B72-10006 05

ANTIFRICTION BEARINGS

Space suit may have orthotic applications
ARC-10275 B72-10297 05
Ball bearing protector
M-FS-21612 B72-10322 07
Simple turbine balancing test apparatus
LEWIS-11658 B72-10377 07

- Design criteria monograph for high-load high-speed rolling-contact bearings
LEWIS-11823 B72-10627 04
- New detection method for rolling element and bearing defects
M-FS-21911 B72-10689 06
- APERTURES**
- Mass separator for low velocity ions
ARC-10375 B72-10123 03
- Annular objective apertures improve resolution of electron microscopes
ARC-10448 B72-10171 03
- Vortex servovalve for fluidic or electrical input
ARC-10155 B72-10173 07
- APPLICATIONS OF MATHEMATICS**
- Mathematical techniques for estimating operational readiness of complex systems
MSC-17694 B72-10335 09
- Variable boundary II heat conduction
LEWIS-10679 B72-10444 09
- Computer program analyzes and monitors electrical power systems (POSIMO)
GSFC-11505 B72-10610 09
- Method for nonlinear exponential regression analysis
M-FS-21965 B72-10622 09
- Computer program to generate attitude error equations for a gimbaled platform
M-FS-21991 B72-10624 09
- APPROACH CONTROL**
- Aircraft communication via telefacsimile system
M-FS-20839 B72-10139 02
- APPROXIMATION**
- Cubic spline functions for curve fitting
LRL-10034 B72-10311 09
- AQUEOUS SOLUTIONS**
- Stabilization of lactate dehydrogenase
ARC-10415 B72-10062 05
- Particle detection by a light-scattering technique
ARC-10384 B72-10160 03
- Carbon dioxide concentrator
ARC-10245 B72-10194 05
- Electron beam chemistry produces high purity metals
LEWIS-11639 B72-10439 04
- Nonflammable and abrasion resistant coating process for glass fibers
MSC-14024 B72-10445 08
- ARC HEATING**
- Pulsed high-power arc heater with improved cathode and triggering mechanism
ARC-10173 B72-10048 03
- ARC LAMPS**
- A dual-beam actinic light source for photosynthesis research
ARC-10351 B72-10205 05
- ARC WELDING**
- Analysis of thermal stress and metal movement during welding
M-FS-20984 B72-10333 04
- ARCHITECTURE**
- Techniques for improving reliability of computers
M-FS-21326 B72-10109 02
- Fabrication of carbon film composites for high-strength structures
ARC-10613 B72-10423 04
- ARGON**
- A liquid radiation detector with high spatial resolution
MSC-13965 B72-10034 03
- Long-term drift of thermocouples at 1600 K
LEWIS-11471 B72-10176 01
- Diatomic infrared gasdynamic laser permits selection of wavelengths
ARC-10370 B72-10206 03
- A sensitive image intensifier which uses inert gas
LRL-10024 B72-10312 03
- Plasma calcining of pigment particles for thermal control coatings
M-FS-21267 B72-10320 04
- Ion plating seals microcracks or porous metal components
LEWIS-11657 B72-10397 04
- Proposed semiconductor film improvement
HQ-10685 B72-10438 04
- Metastable atom probe for measuring electron beam density profiles
M-FS-21593 B72-10485 03
- Sputter etching of hemispherical bearings
HQ-10712 B72-10534 08
- ARITHMETIC AND LOGIC UNITS**
- Flexible desk top computers using Large Scale Integration (L.S.I.) chips
M-FS-21277 B72-10112 01
- ARMATURES**
- Solenoid-operated swing-check valve
XAC-10048 B72-10037 06
- A brushless dc spin motor for momentum exchange altitude control
M-FS-14952 B72-10448 02
- AROMATIC COMPOUNDS**
- Ultraviolet and thermally stable polymer compositions
ARC-10592 B72-10709 04
- ARRAYS**
- Sheet plastic filters for solar cells
NPO-11464 B72-10090 04
- Interconnections for fluidic circuits
ARC-10481 B72-10164 02
- Flexible, low-cost silicon solar cell arrays
LEWIS-11069 B72-10177 02
- ARTERIES**
- Electronic circuit detects left ventricular ejection events in cardiovascular system
LEWIS-11581 B72-10512 05
- ASBESTOS**
- Carbon dioxide concentrator
ARC-10245 B72-10194 05
- Hydrogen eliminator
ARC-10408 B72-10208 03
- ASSEMBLER ROUTINES**
- Significance arithmetic experimental package (SIGPAC)
GSFC-11499 B72-10600 09
- Program to produce horizontal stereographic print maps from Nimbus HRIR data
GSFC-11397 B72-10606 09
- Two autowire versions for CDC-3200 and IBM-360
GSFC-11526 B72-10608 09
- ASSEMBLIES**
- Ferromagnetic-fluid logic devices
ARC-10503 B72-10011 06
- Pressure-probe assembly for wind tunnels
ARC-10569 B72-10248 03
- ASTRONAUT PERFORMANCE**
- Space-suit carbon dioxide absorption system: A concept
ARC-10546 B72-10168 05
- ASTRONOMY**
- Sunspot analysis and prediction
M-FS-21724 B72-10317 03
- ATMOSPHERIC CHEMISTRY**
- Atmospheric density variations related to internal gravity waves
M-FS-21637 B72-10143 03
- ATMOSPHERIC CIRCULATION**
- Cell for electrolysis of water vapor
ARC-10521 B72-10166 03
- Aircrew oxygen system
ARC-10247 B72-10195 05
- ATMOSPHERIC COMPOSITION**
- Mercury in the environment
AEC-10048 B72-10233 05
- Self-calibrating remote atmospheric electromagnetic probe and data acquisition system
M-FS-21212 B72-10665 03
- ATMOSPHERIC DENSITY**
- Atmospheric density variations related to internal gravity waves
M-FS-21637 B72-10143 03
- ATMOSPHERIC ELECTRICITY**
- Lightning flash detection system
ARC-10562 B72-10272 02
- ATMOSPHERIC ENTRY**
- Optimized braking of landing vehicles with atmospheric drag
NPO-11402 B72-10084 06
- Improved high-performance shock tube
NPO-11885 B72-10242 03
- ATMOSPHERIC HEATING**
- Atmospheric density variations related to internal gravity waves
M-FS-21637 B72-10143 03
- ATMOSPHERIC PRESSURE**
- Hydrogen eliminator
ARC-10408 B72-10208 03
- ATMOSPHERIC TURBULENCE**
- Atmospheric density variations related to internal gravity waves
M-FS-21637 B72-10143 03
- Program to determine space vehicle response to wind turbulence
M-FS-21614 B72-10410 09
- ATOMIC WEIGHTS**
- An empirical relationship for the penetration of 1 to 3 MeV electrons
LEWIS-11495 B72-10144 04
- ATTACHMENT**
- Properties of ionization breakdown of air at microwave frequencies and optimization of component dimensions for maximum microwave power
M-FS-21924 B72-10316 01
- Quick-donning backpack harness
LANGLEY-10102 B72-10641 05
- ATTITUDE CONTROL**
- Pressure sensitive gas flow meter
ARC-10219 B72-10049 06
- Adaptive position control loop
ARC-10255 B72-10052 02
- Inertial reference unit
NPO-11518 B72-10094 02
- Driver circuit for inductive loads
ARC-10073 B72-10268 01
- ATTITUDE STABILITY**
- Wide angle solar sensor
NPO-11341 B72-10080 01
- AUDIO EQUIPMENT**
- An absentee monitoring device
KSC-10668 B72-10578 01
- AUDIO FREQUENCIES**
- Improved audio reproduction system
ARC-10404 B72-10059 01

AUDITORY SIGNALS

- A sonic transducer to detect fluid leaks
 - KSC-10704 B72-10376 01
- An absentee monitoring device
 - KSC-10668 B72-10578 01

AUDITORY STIMULI

- An absentee monitoring device
 - KSC-10668 B72-10578 01
- Loudness (annoyance), prediction procedure for steady sounds
 - LEWIS-11761 B72-10579 05

AURORAS

- Atmospheric density variations related to internal gravity waves
 - M-FS-21637 B72-10143 03
- Sunspot analysis and prediction
 - M-FS-21724 B72-10317 03

AUTOCLAVES

- Low-void polyimide resins for autoclave processing
 - LEWIS-11665 B72-10728 04

AUTOCLAVING

- Heart catheter cable and connector
 - ARC-10406 B72-10200 05
- Titanium reinforced boron polyimide composite
 - M-FS-21916 B72-10353 04

AUTOMATIC CONTROL

- Real-time pair-feeding of animals
 - ARC-10302 B72-10298 05
- A valve concept for remote fluid flow control
 - M-FS-16097 B72-10400 07
- Automatic air flow control in air conditioning ducts
 - GSFC-11445 B72-10490 06
- Automatic agar tray inoculation device
 - LANGLEY-11074 B72-10637 05
- A proposed remote manipulator system: A concept
 - MSC-14245 B72-10733 06

AUTOMATIC CONTROL VALVES

- Automatic water inventory, collecting, and dispensing unit
 - LANGLEY-11071 B72-10663 06

AUTOMATIC GAIN CONTROL

- Low phase-shift amplifier
 - NPO-11663 B72-10185 01
- Acoustical analysis system
 - GSFC-11087 B72-10751 02

AUTOMATION

- A system for automatic analysis of blood pressure data for digital computer entry
 - LEWIS-11751 B72-10632 05
- Dual field alignment display and control for electron micropattern generator
 - M-FS-22118 B72-10646 01

AUTOMOBILES

- Carbon monoxide oxidation rates computed for automobile thermal reactor conditions
 - LEWIS-11638 B72-10137 04
- A sonic transducer to detect fluid leaks
 - KSC-10704 B72-10376 01

AUXILIARY POWER SOURCES

- Latch mechanism
 - M-FS-21606 B72-10457 08

AUXILIARY PROPULSION

- Propulsion sizing program
 - MSC-14016 B72-10605 09

AVALANCHE DIODES

- Gas leak-detection system
 - NPO-11405 B72-10087 03

- Precision voltage regulator
 - NPO-11502 B72-10092 01
- A simple tachometer circuit
 - ARC-10603 B72-10308 01

AXIAL FLOW PUMPS

- A method for calculating the effects of design errors and measurement errors on pump performance
 - LEWIS-11503 B72-10292 07

AXIAL LOADS

- Turbopump radial and axial rotor support system
 - M-FS-21495 B72-10264 07

AXIAL STRESS

- Strain gage attachment by spot welding reduces the fatigue strength of Ti-6Al-4V, Rene 41, and Inconel X
 - LANGLEY-10930 B72-10339 04

AXISYMMETRIC BODIES

- Program for the transient response of ablating axisymmetric bodies including the effects of shape change
 - LANGLEY-11049 B72-10068 09
- Structural design and stress analysis program for advanced composite filament-wound axisymmetric pressure vessels (COMTANK)
 - NPO-11943 B72-10073 09
- Computer program for calculating the temperature field of face seals
 - LEWIS-11110 B72-10483 09

AZINES

- Ultraviolet and thermally stable polymer compositions
 - ARC-10592 B72-10709 04

B

BACKUPS

- Strain gage attachment by spot welding reduces the fatigue strength of Ti-6Al-4V, Rene 41, and Inconel X
 - LANGLEY-10930 B72-10339 04

BACTERIA

- Automatic agar tray inoculation device
 - LANGLEY-11074 B72-10637 05

BAFFLES

- Baffle to confine glow discharge in ion pump
 - M-FS-21575 B72-10324 03
- Efficient baffle prevents oil backstreaming in diffusion pumps
 - LRL-10025 B72-10475 07
- Analysis and computer programs to calculate acoustic wave properties of baffled chambers
 - LEWIS-11529 B72-10577 09
- A four-panel enclosure protects from explosion
 - M-FS-21847 B72-10613 06

BAGS

- Counter lung
 - ARC-10248 B72-10219 05

BALANCE

- Quartz crystal microbalance use in biological studies
 - NPO-11346 B72-10243 05
- Simple turbine balancing test apparatus
 - LEWIS-11658 B72-10377 07

BALL BEARINGS

- Low-friction ball-and-socket
 - NPO-11348 B72-10081 08

- New full-complement ball bearing lubrication technique
 - MSC-13850 B72-10174 07

- Ball bearing protector
 - M-FS-21612 B72-10322 07

- A system for early warning of bearing failure
 - M-FS-21877 B72-10494 06

- New detection method for rolling element and bearing defects
 - M-FS-21911 B72-10689 06

BALLISTIC TRAJECTORIES

- Optimized braking of landing vehicles with atmospheric drag
 - NPO-11402 B72-10084 06

BALLS

- A piezoelectrically actuated ball valve
 - ARC-10338 B72-10204 06
- Machine finishes balls to high degree of roundness
 - M-FS-21448 B72-10595 08

BANDPASS FILTERS

- Signal to noise measurement circuit
 - GSFC-11239 B72-10102 01
- Solar sensor with autocollimator
 - ARC-10148 B72-10192 03
- A sonic transducer to detect fluid leaks
 - KSC-10704 B72-10376 01

BANDWIDTH

- Third order digital-to-analog converter
 - MSC-12458 B72-10030 02
- Aircraft communication via telefacsimile system
 - M-FS-20839 B72-10139 02
- Selecting digital filters
 - M-FS-20933 B72-10156 01
- Differential input preamplifier
 - ARC-10489 B72-10165 01
- Speed enhancement of complementary MOS devices
 - ARC-10387 B72-10184 01
- Projections of scan patterns on human retina
 - ARC-10181 B72-10193 05
- Acoustic spectral analysis and testing techniques
 - NPO-11554 B72-10341 03
- A study of the power spectral density of an FM signal
 - M-FS-21070 B72-10361 02
- Frequency-to-amplitude converter: A concept
 - MSC-12395 B72-10729 01

BATHS

- Temperature control of a cryogenic bath
 - HQ-10788 B72-10532 03

BAYES THEOREM

- Optimizing designs of two-level factorial experiments given partial prior information (NAMER)
 - LEWIS-11708 B72-10726 09

BEADS

- Covalent bonding of antibodies of polystyrene latex beads: A concept
 - MSC-13906 B72-10006 05

BEAM LEADS

- Development of chip passivated monolithic complementary MISFET circuits with beam leads
 - M-FS-22264 B72-10696 01

BEAM SPLITTERS

- Liquid-helium-cooled Michelson interferometer
 - ARC-10554 B72-10217 03

- Interferometric rotation sensor
ARC-10278 B72-10274 03
Optical device for producing color line scan display from monochrome oscilloscope traces
LANGLEY-10896 B72-10375 03
Unsupported thin film beam splitter
GSFC-10525 B72-10471 02
Oscillation of laser-beam intensity as observed with beam splitters
ARC-10694 B72-10572 03
- BEAMS (RADIATION)**
Conical electromagnetic radiation flux concentrator
M-FS-21613 B72-10147 03
- BEAMS (SUPPORTS)**
Remote weighing device
M-FS-21556 B72-10325 07
- BEARING**
Inorganic glass ceramic slip rings
M-FS-20711 B72-10313 04
- BEARINGS**
Lubricant selection for gear designers
LEWIS-11483 B72-10136 04
Common bearing material has highest fatigue life at moderate temperature
LEWIS-11592 B72-10382 04
Research on bearing lubricants for use in a high vacuum
M-FS-22119 B72-10469 04
Freon 21 bearing lubrication and coolant system
HQ-10302 B72-10651 06
High torque bellows seal rotary drive
LEWIS-11813 B72-10681 07
- BELLOWS**
Feedback control of variable conductance heat pipes
ARC-10460 B72-10169 03
Vortex servovalve for fluidic or electrical input
ARC-10155 B72-10173 07
Balanced-bellows spirometer
XAC-01547 B72-10279 05
Prediction of flow-induced failures of braided flexible hoses and bellows
M-FS-19004 B72-10407 06
Analytical failure determination of flow-induced fatigue in bellows
M-FS-18178 B72-10488 06
Improved high-temperature gimbal joint
LEWIS-11705 B72-10489 06
Linear accelerator: A concept
KSC-10618 B72-10636 06
High torque bellows seal rotary drive
LEWIS-11813 B72-10681 07
- BELTS**
Tool carrier
M-FS-21469 B72-10319 07
Quick-donning backpack harness
LANGLEY-10102 B72-10641 05
- BENDING**
Energy absorber uses expanded coiled tube
AEC-10044 B72-10239 06
Isogrid structure
M-FS-21567 B72-10323 06
Micro-scale crease-and-fold apparatus
NPO-12029 B72-10552 06
- BERYLLIUM**
Beryllium thin films for resistor applications
ARC-10485 B72-10021 01
- BESSEL FUNCTIONS**
Indefinite integrals of products of some exponential and trigonometric functions
LEWIS-11493 B72-10225 09
- BIBLIOGRAPHIES**
Design criteria monograph on turbopump inducers
LEWIS-11824 B72-10635 08
- BIMETALS**
Thermally stable structural framework
ARC-10612 B72-10252 08
A valve concept for remote fluid flow control
M-FS-16097 B72-10400 07
- BINARY DATA**
Speed enhancement of complementary MOS devices
ARC-10387 B72-10184 01
A simplified, compact static shift register
HQ-10723 B72-10591 02
Frequency-to-amplitude converter: A concept
MSC-12395 B72-10729 01
- BINARY MIXTURES**
Three bit mass spectral search program
NPO-11960 B72-10747 09
- BINDERS (MATERIALS)**
Research on bearing lubricants for use in a high vacuum
M-FS-22119 B72-10469 04
Sintered diamond compacts using metallic cobalt binders
HQ-10706 B72-10519 04
New type of trifunctional alcohol
NPO-10714 B72-10553 04
- BIOACOUSTICS**
Improved ultrasonic biomedical measuring apparatus
ARC-10597 B72-10695 05
- BIOCHEMISTRY**
Covalent bonding of antibodies of polystyrene latex beads: A concept
MSC-13906 B72-10006 05
Silver stain for electron microscopy
ARC-10661 B72-10415 05
- BIOINSTRUMENTATION**
Quartz crystal microbalance use in biological studies
NPO-11346 B72-10243 05
Blood pressure measurement and display system
MSC-13036 B72-10334 05
Improved ultrasonic biomedical measuring apparatus
ARC-10597 B72-10695 05
- BIOLOGICAL EFFECTS**
A process yields large quantities of pure ribosome subunits
HQ-10662 B72-10653 05
A study of radiation environment in space and its biological effects
HQ-10798 B72-10662 03
- BIO Luminescence**
A reusable prepositioned ATP reaction chamber
HQ-10660 B72-10525 05
- BIOMEDICAL DATA**
A system for automatic analysis of blood pressure data for digital computer entry
LEWIS-11751 B72-10632 05
Improved biomedical electrode
MSC-13648 B72-10642 05
- BIOMETRICS**
Improved biomedical electrode
MSC-13648 B72-10642 05
- BIOPHYSICS**
Improved ultrasonic biomedical measuring apparatus
ARC-10597 B72-10695 05
- BIOTELEMETRY**
Coaxial inverted geometry epitaxial transistor
ARC-10330 B72-10056 01
A differential ECG amplifier with single-ended output
ARC-10411 B72-10061 05
Narrowband, crystal-controlled biomedical telemetry system
ARC-10708 B72-10255 01
Protective encapsulation of implantable biotelemetry units
ARC-10514 B72-10301 05
- BISMUTH**
Manganese bismuth thin film for large capacity digital memories
M-FS-21246 B72-10107 03
- BISMUTH ALLOYS**
Removal of filler material from large high energy formed parts
M-FS-16326 B72-10104 06
- BISMUTH COMPOUNDS**
Magnetometer uses bismuth-selenide
LEWIS-11632 B72-10629 03
- BIT SYNCHRONIZATION**
An improved learning decoder
MSC-14070 B72-10573 02
- BITS**
Three bit mass spectral search program
NPO-11960 B72-10747 09
- BLACK BODY RADIATION**
Program to produce horizontal stereographic print maps from Nimbus HRIR data
GSFC-11397 B72-10606 09
- BLAST DEFLECTORS**
A four-panel enclosure protects from explosion
M-FS-21847 B72-10613 06
- BLOCKING**
Implanted telemeter for electrocardiogram and body temperature
XAC-08505 B72-10035 05
- BLOCKS**
Dynamic valve to supply constant total thrust to two orifice jets
ARC-10239 B72-10120 07
Universal inverted flexure
ARC-10345 B72-10122 07
- BLOOD CIRCULATION**
An efficient, simple dialyzer
HQ-10741 B72-10522 05
- BLOOD PRESSURE**
Ear oximeter-transducer monitors four physiological responses
XAC-05422 B72-10224 05
Blood pressure measurement and display system
MSC-13036 B72-10334 05
Electronic circuit detects left ventricular ejection events in cardiovascular system
LEWIS-11581 B72-10512 05
A system for automatic analysis of blood pressure data for digital computer entry
LEWIS-11751 B72-10632 05
Automated analysis of blood pressure measurements (Korotkov sound)
MSC-13999 B72-10756 05

BLOWERS

- Aircrew oxygen system
ARC-10247 B72-10195 05
- Nondispersive infrared analyzer for specific gases in complex mixtures
ARC-10308 B72-10198 03
- Miniature high pressure regulator
ARC-10428 B72-10211 07

BLOWING

- An economical vent cover
M-FS-20692 B72-10348 07

BLOWOUTS

- An economical vent cover
M-FS-20692 B72-10348 07

BLUNT BODIES

- Program to determine radiating, nonadiabatic, inviscid flow over a blunt body by the method of integral relations
LANGLEY-11048 B72-10067 09

BODIES OF REVOLUTION

- Geometrically nonlinear static and dynamic analysis of arbitrarily loaded shells of revolution
LANGLEY-11109 B72-10504 09

BODY MEASUREMENT (BIOLOGY)

- A differential ECG amplifier with single-ended output
ARC-10411 B72-10061 05

BODY SIZE (BIOLOGY)

- Seat belt restraint system
ARC-10519 B72-10692 06

BODY TEMPERATURE

- Implanted telemeter for electrocardiogram and body temperature
XAC-08505 B72-10035 05
- Time-lapse camera for microscopy
ARC-10423 B72-10125 05
- An ingestible temperature-transmitter
ARC-10583 B72-10275 01
- Improved temperature control of liquid cooling garments
MSC-13917 B72-10281 05

BOILERS

- Boiler for generating high quality vapor
LEWIS-11345 B72-10135 06
- Closed-cycle power supply for fluidic control systems
ARC-10480 B72-10163 06
- Computer method for identification of boiler transfer functions
LEWIS-11808 B72-10582 09
- Experimental study of flow distribution with circumferential manifolds
LEWIS-11649 B72-10738 06

BOILING

- Quick, easy to prepare freeze-dried soups
MSC-14003 B72-10017 05
- Multipurpose top for liquid helium Dewar
ARC-10533 B72-10302 03
- Temperature control of a cryogenic bath
HQ-10788 B72-10532 03

BOLOMETERS

- Pulse excitation of bolometer bridges
ARC-10292 B72-10054 01
- Vibrating ribbon bolometer: A concept
XAC-10768 B72-10170 03

BOLTS

- Squib-actuated disconnect device
NPO-11544 B72-10097 06

BOLTZMANN TRANSPORT EQUATION

- Properties of ionization breakdown of air at microwave frequencies and optimization of component dimensions for maximum microwave power
M-FS-21924 B72-10316 01

BONDING

- Specimen for high-temperature tensile tests
ARC-10531 B72-10028 04
- Aluminum foil interconnects for solar cell panels
ARC-10374 B72-10058 08
- Optical bonding agents for severe environments
ARC-10459 B72-10063 04
- Flexible, low-cost silicon solar cell arrays
LEWIS-11069 B72-10177 02
- High strength, medium density molded foam
AEC-10053 B72-10235 04
- Failure in glass
AEC-10088 B72-10364 04
- Bondability of RTV silicon rubber
AEC-10026 B72-10367 04
- Boron aluminum composite structures
M-FS-21571 B72-10386 04
- An improved apochromatic wedge utilizing optical molecular contact bonding
GSFC-11082 B72-10388 03
- Built-in bleeder system in laminated plastic structures
MSC-17713 B72-10562 08
- An approach to real-time process control of semiconductor wire-bonding
M-FS-21558 B72-10644 08

BONES

- Weight simulator
ARC-10100 B72-10046 05
- Cutting thin sections of bone
ARC-10555 B72-10303 05
- Ultrasonic bone densitometer
M-FS-20994 B72-10450 05

BOOLEAN FUNCTIONS

- Techniques for improving reliability of computers
M-FS-21326 B72-10109 02

BOOMS (EQUIPMENT)

- Position indicating, rotating boom
LANGLEY-11202 B72-10066 07
- Self-deploying boom
GSFC-10566 B72-10574 07

BORING MACHINES

- Universal inverted flexure
ARC-10345 B72-10122 07

BORON

- Structural design and stress analysis program for advanced composite filament-wound axisymmetric pressure vessels (COMTANK)
NPO-11943 B72-10073 09
- Oxygen-layer structure improves lithium-doped silicon solar cells
NPO-11403 B72-10085 03
- Introduction of lithium into the front surface of solar cells
NPO-11404 B72-10086 02
- Nondestructive-test standards for evaluation of fiber-reinforced composites
M-FS-21288 B72-10157 04
- Improved method for producing metal-reinforced ceramics
AEC-10070 B72-10234 04

Graphite and boron-reinforced composite materials data summary

- M-FS-21691 B72-10294 04
- Fabrication of uniaxial filament-reinforced epoxy tubes for structural application
LANGLEY-10203 B72-10340 04
- Boron aluminum composite structures
M-FS-21571 B72-10386 04

BORON COMPOUNDS

- Titanium reinforced boron polyimide composite
M-FS-21916 B72-10353 04
- Equations to assess the impact resistance of fiber composites
LEWIS-11486 B72-10503 04

BORON 10

- Boron-10 loaded inorganic shielding material
M-FS-22280 B72-10740 04

BOUNDARIES

- Program for the transient response of ablating axisymmetric bodies including the effects of shape change
LANGLEY-11049 B72-10068 09

BOUNDARY LAYER CONTROL

- Integrated flight controller for light aircraft
ARC-10456 B72-10213 06
- Pressure-probe assembly for wind tunnels
ARC-10569 B72-10248 03

BOUNDARY LAYERS

- Design of two-dimensional sharp-edged-throat supersonic nozzle with boundary-layer correction
LEWIS-11636 B72-10070 09

BOUNDARY LUBRICATION

- Lubricant selection for gear designers
LEWIS-11483 B72-10136 04

BRACKETS

- Electrical grounding bracket
ARC-10041 B72-10045 01

BRAIN

- A thermocouple thermode for small animals
ARC-10550 B72-10559 05

BRAKES (FOR ARRESTING MOTION)

- Sprag solenoid brake
M-FS-21846 B72-10669 06

BRAKING

- Optimized braking of landing vehicles with atmospheric drag
NPO-11402 B72-10084 06

BRASSES

- Soldering iron temperature indicator
NPO-11545 B72-10098 02

BRAZING

- High-temperature ceramic-to-ceramic seals
ARC-10319 B72-10199 04
- Nondestructive testing for braze voids in thin panels by use of special coatings
LANGLEY-10486 B72-10374 08
- The weld-brazing metal joining process
LANGLEY-11072 B72-10683 08

BREAKDOWN

- Novel dielectric reduces corona breakdown in ac capacitors
M-FS-21486 B72-10505 01

BREATHING

- Balanced-bellows spirometer
XAC-01547 B72-10279 05
- Electronic circuit detects left ventricular ejection events in cardiovascular system
LEWIS-11581 B72-10512 05

- Breathing-metabolic simulator
 HQ-10766 B72-10657 05
 Metabolic simulation chamber
 HQ-10776 B72-10658 05
 Simulated breath waveform control
 HQ-10779 B72-10661 05

BREATHING APPARATUS

- Regenerable metallic oxide systems for removal of carbon dioxide: A concept
 ARC-10570 B72-10420 04
 Patient's breath controls comfort devices
 LANGLEY-11138 B72-10533 05
 Breathing-metabolic simulator
 HQ-10766 B72-10657 05
 Drive mechanism for production of simulated human breath
 HQ-10777 B72-10659 05
 An efficient prebreathing apparatus for humans during decompression
 MSC-14151 B72-10690 05

BRICKS

- Flexible shielding system for radiation protection
 LRL-10028 B72-10500 03

BRITTLE MATERIALS

- Simple, reproducible methods for thermal shock testing of brittle materials
 NUC-11020 B72-10228 06
 Repeatable method of thermal stress fracture test of brittle materials
 NUC-11019 B72-10258 06
 Energy absorbing system for mechanical impacts
 NPO-10671 B72-10712 06

BRITTLINESS

- Failure in glass
 AEC-10088 B72-10364 04

BROADBAND

- ARC protection system for high-power RF amplifiers
 NPO-11560 B72-10099 02
 Projections of scan patterns on human retina
 ARC-10181 B72-10193 05
 Improved intensifying screen reduces X-ray exposure
 AEC-10090 B72-10232 03
 Wideband wattmeter for instant measurement of real power
 LEWIS-11698 B72-10737 01

BROADBAND AMPLIFIERS

- Lightweight, broad-band spectrum analyzer
 ARC-10405 B72-10060 01
 Low phase-shift amplifier
 NPO-11663 B72-10185 01
 Broadband RF-distribution amplifier
 NPO-11401 B72-10245 01

BROMINE

- Halogenation of microcapsule walls
 ARC-10410 B72-10161 04

BROMINE COMPOUNDS

- Initiation of polymerization by tetrabutylammonium p-lithiophenoxide
 ARC-10553 B72-10223 04

BROTHERS

- Quick, easy to prepare freeze-dried soups
 MSC-14003 B72-10017 05

BUBBLES

- Expandable coating cocoon leak detection system
 M-FS-21848 B72-10380 06
 Two-axis leveling detector system
 M-FS-21344 B72-10392 02

- Phase-change materials handbook
 M-FS-22064 B72-10464 04

BUCKLING

- Simple method for forming thin-wall pressure vessels
 ARC-10511 B72-10025 08
 Isogrid structure
 M-FS-21567 B72-10323 06
 Geometrically nonlinear static and dynamic analysis of arbitrarily loaded shells of revolution
 LANGLEY-11109 B72-10504 09

BUFFERS (CHEMISTRY)

- Glass technology involved in the manufacture of magnetometer components
 GSFC-11283 B72-10132 03

BUFFETING

- Wind tunnel buffet load measuring technique
 ARC-10495 B72-10022 06

BUILDINGS

- Flexible shielding system for radiation protection
 LRL-10028 B72-10500 03

BULBS

- Soldering iron temperature indicator
 NPO-11545 B72-10098 02
 Glass technology involved in the manufacture of magnetometer components
 GSFC-11283 B72-10132 03

BURNING RATE

- Suppressants for lowering propellant binder burning rate
 ARC-10563 B72-10560 04

BUS CONDUCTORS

- Peak-power-point monitor for solar panel
 NPO-11708 B72-10694 02

BUSHINGS

- Low cost anti-galling bushings
 LEWIS-11724 B72-10359 08

BUTADIENE

- Improved elastomer for use with oxygen difluoride
 ARC-10528 B72-10027 04

BUTT JOINTS

- Simple method for forming thin-wall pressure vessels
 ARC-10511 B72-10025 08
 Bonding titanium to Rene 41 alloy
 ARC-10311 B72-10041 08

BYPASSES

- A hybrid electromechanical solid state switch for ac power control
 MSC-14005 B72-10018 02
 High voltage protection network
 ARC-10197 B72-10119 02
 Frequency switch keyed oscillator
 ARC-10412 B72-10124 01

C**CABIN ATMOSPHERES**

- Oxygen reclamation with solid oxide electrolytes
 ARC-10487 B72-10273 03
 Leak test system
 M-FS-21788 B72-10576 06
 Automation of Bosch reaction for CO₂ reduction
 M-FS-21674 B72-10666 04

CABLES

- Slitting flat conductor cables with the single cutting edge slitter
 M-FS-20111 B72-10575 07

CABLES (ROPES)

- A cable stabilizer for outdoor elevators
 KSC-10513 B72-10283 07
 A tool for measuring elevator cable tension
 KSC-10708 B72-10509 07

CADMIUM COMPOUNDS

- Electrodes for sealed secondary batteries
 ARC-10238 B72-10050 02

CADMIUM SULFIDES

- High field CdS detector for infrared radiation
 LANGLEY-11027 B72-10725 04

CALCIFICATION

- Ultrasonic bone densitometer
 M-FS-20994 B72-10450 05

CALCITE

- Optical bonding agents for severe environments
 ARC-10459 B72-10063 04

CALCIUM

- Weight simulator
 ARC-10100 B72-10046 05

CALCIUM COMPOUNDS

- Acousto-optic filter for electronic laser tuning
 HQ-10715 B72-10520 03

CALCIUM FLUORIDES

- Stable photosensor amplifiers
 NPO-11561 B72-10100 01
 Interferometric rotation sensor
 ARC-10278 B72-10274 03

CALCIUM OXIDES

- Oxygen reclamation with solid oxide electrolytes
 ARC-10487 B72-10273 03

CALCIUM TUNGSTATES

- Improved intensifying screen reduces X-ray exposure
 AEC-10090 B72-10232 03

CALCULATORS

- Frequency-wavelength calculator with table of dielectric properties
 GSFC-11200 B72-10472 03

CALIBRATING

- Remote sensing X-ray spectrometer
 MSC-13978 B72-10016 03
 An improved aesthesiometer
 MSC-13609 B72-10032 05
 Low temperature scale for a 1 to 20 degree Kelvin region
 AEC-10007 B72-10146 03
 Laboratory leak tester provides high sensitivity
 AEC-10042 B72-10240 03
 Small turbine-type flowmeters for liquid hydrogen
 LEWIS-11535 B72-10331 06
 Computer program for fitting low-order polynomial splines by method of least squares
 LEWIS-11651 B72-10585 09
 Oscillating hot-wire anemometer
 NPO-11634 B72-10609 02
 Use of small turbine-type flowmeters to measure flow in large pipes
 LEWIS-11851 B72-10631 06
 Linear accelerator: A concept
 KSC-10618 B72-10636 06
 Portable beveling tool
 M-FS-16863 B72-10678 07

CALIFORNIA

- Wind trajectory tracing for air pollution studies (AIRPOL)
 NPO-11892 B72-10072 09

SUBJECT INDEX

CALORIMETERS

- Method of determining thermal conductivity in multi-layer insulation systems
M-FS-20213 872-10154 03
- Superior cryogenic insulation developed
M-FS-21560 872-10187 04

CAMERA SHUTTERS

- Nematic liquid crystals for optical shutters: A concept
NPO-11367 872-10083 03
- Cine recording ophthalmoscope
ARC-10399 872-10189 05
- Hand-held photomicroscopy system
ARC-10468 872-10190 03

CAMERAS

- Time-lapse camera for microscopy
ARC-10423 872-10125 05
- Projections of scan patterns on human retina
ARC-10181 872-10193 05
- Optical device for producing color line scan display from monochrome oscilloscope traces
LANGLEY-10896 872-10375 03
- Neutron radiographic viewing system
M-FS-22024 872-10468 02

CANS

- Regenerable metallic oxide systems for removal of carbon dioxide: A concept
ARC-10570 872-10420 04
- Flexible shielding system for radiation protection
LRL-10028 872-10500 03

CAPACITANCE

- Voltage-tunable parallel-T filter for remote operation
NPO-11165 872-10077 01
- Simple dynamic electromagnetic radiation detector
LEWIS-11159 872-10227 03

CAPACITORS

- High noise immunity one shot
ARC-10137 872-10047 01
- Improved device measures performance of batteries under load
ARC-10252 872-10051 02
- Voltage-tunable parallel-T filter for remote operation
NPO-11165 872-10077 01
- Control of acceleration in sine/random vibration tests
NPO-11482 872-10091 02
- Tornado detector and alarm
M-FS-20915 872-10106 01
- Frequency switch keyed oscillator
ARC-10412 872-10124 01
- Heart simulator
M-FS-21609 872-10131 02
- Vibrating ribbon bolometer: A concept
XAC-10768 872-10170 03
- Improved high-performance shock tube
NPO-11885 872-10242 03
- Control of oscillations in a discharge circuit
ARC-10556 872-10304 01
- A simple tachometer circuit
ARC-10603 872-10308 01
- Aluminum nitride insulating films for MOSFET devices
NPO-11859 872-10425 04
- Novel dielectric reduces corona breakdown in ac capacitors
M-FS-21486 872-10505 01

Electronic integrator for gyro rate output voltages
NPO-11499 872-10555 01

CAPILLARY FLOW

- Closed-cycle power supply for fluidic control systems
ARC-10480 872-10163 06
- Internal capillary insulation for cryogenic tanks
LEWIS-11234 872-10626 06

CAPILLARY TUBES

- Restartable heat pipe
ARC-10198 872-10188 03
- Microminiature gas chromatographic column
ARC-10594 872-10306 04
- Stabilization of porous glass reverse-osmosis membranes
ARC-10646 872-10309 04

CAPSULES

- Ferrofluidic solenoid with axial and radial displacement
NPO-11738 872-10241 06

CARBIDES

- Improved method for producing metal-reinforced ceramics
AEC-10070 872-10234 04

CARBOHYDRATES

- Immobilized phosphorylase for synthesis of polysaccharides from glucose
ARC-10680 872-10550 04

CARBON

- Isotropic pyrolytic carbons
ARC-10532 872-10029 04
- High speed, self-acting, face-contact shaft seal has low leakage and very low wear
LEWIS-11598 872-10114 07
- Trace contaminant adsorption and sorbent regeneration in closed ecological systems
LANGLEY-10681 872-10328 04
- Nonmetallic impurities improve mechanical properties of vapor-deposited tungsten
LEWIS-10800 872-10454 04
- Al/Cl₂ molten salt battery
HQ-10696 872-10527 01
- Polishing is made cheaper by disposable diamond-impregnated abrasive cloth
MSC-14247 872-10616 08

CARBON DIOXIDE

- Space-suit carbon dioxide absorption system: A concept
ARC-10546 872-10168 05
- Aircrew oxygen system
ARC-10247 872-10195 05
- Simple gas chromatographic system for analysis of microbial respiratory gases
ARC-10403 872-10207 03
- Oxygen reclamation with solid oxide electrolytes
ARC-10487 872-10273 03
- Study of in-situ degradation of thermal control surfaces
M-FS-20892 872-10336 04
- Helium leak measurements using CO₂ as a carrier
M-FS-21742 872-10354 03
- A continuous physiological data collector
M-FS-20835 872-10402 05
- Solid amine compounds as sorbents for carbon dioxide: A concept
ARC-10571 872-10421 04

CARDIOVASCULAR SYSTEM

Dry ice plug for hydraulic and pneumatic pipe flushing

- MSC-12548 872-10496 06
- Carbon dioxide concentration indicator
HQ-10582 872-10526 05
- Breathing-metabolic simulator
HQ-10766 872-10657 05
- Metabolic simulation chamber
HQ-10776 872-10658 05
- Automation of Bosch reaction for CO₂ reduction
M-FS-21674 872-10666 04

CARBON DIOXIDE CONCENTRATION

- Carbon dioxide concentrator
ARC-10245 872-10194 05
- Aircrew oxygen system
ARC-10247 872-10195 05
- Carbon dioxide concentration indicator
HQ-10582 872-10526 05

CARBON DIOXIDE LASERS

- Efficient wire-grid duplexer-polarized for CO₂ lasers
GSFC-11403 872-10440 03
- Floating zone process for drawing small diameter fibers of refractory materials
LEWIS-11380 872-10491 04
- Measurement of electron density and temperature in plasmas
ARC-10598 872-10563 03

CARBON DIOXIDE REMOVAL

- Carbon dioxide concentrator
ARC-10245 872-10194 05
- Regenerable metallic oxide systems for removal of carbon dioxide: A concept
ARC-10570 872-10420 04

CARBON FIBERS

- Specimen for high-temperature tensile tests
ARC-10531 872-10028 04
- Fabrication of carbon film composites for high-strength structures
ARC-10613 872-10423 04

CARBON MONOXIDE

- Carbon monoxide oxidation rates computed for automobile thermal reactor conditions
LEWIS-11638 872-10137 04
- Comparison of catalyst activity
ARC-10493 872-10201 04
- Diatomic infrared gasdynamic laser permits selection of wavelengths
ARC-10370 872-10206 03
- Oxygen reclamation with solid oxide electrolytes
ARC-10487 872-10273 03
- Air assist fuel nozzle reduces aircraft gas turbine engine emissions at idle operation
LEWIS-11512 872-10434 07

CARBON STEELS

- Study of hot hardness characteristics of tool steels
LEWIS-11785 872-10583 04

CARBON 14

- Gas leak-detection system
NPO-11405 872-10087 03

CARBONIC ACID

- Carbon dioxide concentration indicator
HQ-10582 872-10526 05

CARBOXYLIC ACIDS

- A method of isolating organic compounds present in water
AEC-10010 872-10044 04

CARDIOVASCULAR SYSTEM

- Electronic circuit detects left ventricular ejection events in cardiovascular system
LEWIS-11581 872-10512 05

CARRIER FREQUENCIES

Accurate measurement of telemetry performance
NPO-11457 B72-10089 02

CARRIERS

Quick-donning backpack harness
LANGLEY-10102 B72-10641 05

CASCADE CONTROL

Pulsed high-power arc heater with improved cathode and triggering mechanism
ARC-10173 B72-10048 03

CASCADE FLOW

Slot configuration for axial-flow turbo-machinery blades
LEWIS-11572 B72-10484 07

CASSEGRAIN ANTENNAS

Compensating subreflector for two-reflector antennas: A concept
NPO-11503 B72-10093 06

CASTING

Composite casting demonstration
M-FS-21668 B72-10266 04

CATALYSTS

Comparison of catalyst activity
ARC-10493 B72-10201 04
Hydrogen eliminator
ARC-10408 B72-10208 03
Silver-chlorine fuel cell: A concept
ARC-10491 B72-10221 03
Initiation of polymerization by tetrabutylammonium p-lithiophenoxide
ARC-10553 B72-10223 04
Fire retardant polyisocyanurate foam
ARC-10280 B72-10269 04
Catalyst for sodium chlorate decomposition
ARC-10584 B72-10305 04
Free-radical solution-polymerization of trifluoronitrosomethane with tetrafluoroethylene
ARC-10567 B72-10419 04
Chemical modification of poly(p-phenylene) for use in ablative compositions
ARC-10135 B72-10451 04

CATALYTIC ACTIVITY

Propellant-powered actuator for gas generators
ARC-10484 B72-10008 03
Low temperature catalytic ignition of hydrogen and oxygen
ARC-10492 B72-10127 03
Comparison of catalyst activity
ARC-10493 B72-10201 04

CATHETERIZATION

Heart catheter cable and connector
ARC-10406 B72-10200 05

CATHODE RAY TUBES

Aircraft communication via telefacsimile system
M-FS-20839 B72-10139 02
Projections of scan patterns on human retina
ARC-10181 B72-10193 05
Optical device for producing color line scan display from monochrome oscilloscope traces
LANGLEY-10896 B72-10375 03
A visual-display and storage device
GSFC-10901 B72-10647 02
Propellant feed systems transients
MSC-17848 B72-10677 06

CATHODES

Pulsed high-power arc heater with improved cathode and triggering mechanism
ARC-10173 B72-10048 03
Electrodes for sealed secondary batteries
ARC-10238 B72-10050 02
High-temperature, long-life thyratron
LEWIS-11327 B72-10134 01
Silver-chlorine fuel cell: A concept
ARC-10491 B72-10221 03
Improved high-performance shock tube
NPO-11885 B72-10242 03
Ion plating seals microcracks or porous metal components
LEWIS-11657 B72-10397 04
Al/Ci2 molten salt battery
HQ-10696 B72-10527 01
High-intensity source of extreme ultraviolet
HQ-10754 B72-10528 03
Cathode for use with low density gases
HQ-10687 B72-10530 01
Prevention of cathode damage from positive ion bombardment
HQ-10688 B72-10654 03

CAVITATION FLOW

Cavitating Venturi sump
ARC-10504 B72-10012 06
Cavitation data for hydraulic equipment
LEWIS-11642 B72-10384 07
Computer programs for the design of liquid-to-liquid jet pumps
LEWIS-11679 B72-10584 09

CAVITIES

Universal inverted flexure
ARC-10345 B72-10122 07
Survey of information concerning large diameter deep hole drilling
AEC-10051 B72-10238 08
Water cavity degasser for electrolysis cells
ARC-10244 B72-10246 03
A sensitive image intensifier which uses inert gas
LRL-10024 B72-10312 03
Prevention of cathode damage from positive ion bombardment
HQ-10688 B72-10654 03
A bi-stable optical device
HQ-10701 B72-10655 03

CAVITY RESONATORS

Acousto-optic filter for electronic laser tuning
HQ-10715 B72-10520 03
Mechanically and thermally stable, maser cavity resonator
HQ-10790 B72-10523 01

CDC COMPUTERS

FORTTRAN read package
MSC-14161 B72-10750 09

CDC 3200 COMPUTER

Two autowire versions for CDC-3200 and IBM-360
GSFC-11526 B72-10608 09

CDC 6000 SERIES COMPUTERS

Program for the transient response of ablating axisymmetric bodies including the effects of shape change
LANGLEY-11049 B72-10068 09
Mislift and miss-drag programs
LANGLEY-10932 B72-10153 09

CDC 6400 COMPUTER

Variable boundary II heat conduction
LEWIS-10679 B72-10444 09

CDC 6600 COMPUTER

Program to determine radiating, nonadiabatic, inviscid flow over a blunt body by the method of integral relations
LANGLEY-11048 B72-10067 09
Rapid analysis of electric propulsion missions
ARC-10430 B72-10299 09
Propulsion sizing program
MSC-14016 B72-10605 09
Effects of nonuniform swash-plate stiffness on coupled blade-control system dynamics and stability
LANGLEY-11068 B72-10749 06

CELESTIAL MECHANICS

Gravitational gradiometer measures mass changes
M-FS-20814 B72-10140 03

CELL CATHODES

Cell for electrolysis of water vapor
ARC-10521 B72-10166 03

CELLS (BIOLOGY)

Time-lapse camera for microscopy
ARC-10423 B72-10125 05
A reusable prepositioned ATP reaction chamber
HQ-10660 B72-10525 05
Automatic agar tray inoculation device
LANGLEY-11074 B72-10637 05
A process yields large quantities of pure ribosome subunits
HQ-10662 B72-10653 05

CELLULOSE

Water purification by reverse osmosis using heterocyclic polymer membranes
LANGLEY-10514 B72-10230 04
Insolubilized enzymes for food synthesis
ARC-10568 B72-10247 04
An efficient, simple dialyzer
HQ-10741 B72-10522 05

CEMENTATION

A protective coating for stainless steel
LEWIS-11267 B72-10256 04

CEMENTS

Optical bonding agents for severe environments
ARC-10459 B72-10063 04

CENTAUR LAUNCH VEHICLE

Main tank injection pressurization program
LEWIS-11368 B72-10069 09

CENTRAL NERVOUS SYSTEM

A thermocouple thermode for small animals
ARC-10550 B72-10559 05

CENTRIFUGAL COMPRESSORS

Continuous-flow variable-density wind tunnel facilities
NPO-11287 B72-10078 06

CENTRIFUGAL FORCE

Cine recording ophthalmoscope
ARC-10399 B72-10189 05

CENTRIFUGAL PUMPS

A method for calculating the effects of design errors and measurement errors on pump performance
LEWIS-11503 B72-10292 07

CENTRIFUGES

Improved method for reclaiming vacuum diffusion pump oil
LEWIS-11647 B72-10511 04

CENTRIFUGING

Separation of gas mixtures by centrifugation
ARC-10449 B72-10270 03

CERAMIC BONDING

A piezoelectrically actuated ball valve
ARC-10338 B72-10204 06

CERAMICS

High-temperature ceramic-to-ceramic seals
ARC-10319 B72-10199 04
Fabrication of large ceramic electrolyte disks
ARC-10320 B72-10202 03
A piezoelectrically actuated ball valve
ARC-10338 B72-10204 06
Improved method for producing metal-reinforced ceramics
AEC-10070 B72-10234 04
Inorganic glass ceramic slip rings
M-FS-20711 B72-10313 04
Plasma calcining of pigment particles for thermal control coatings
M-FS-21267 B72-10320 04
Ultrasonic bone densitometer
M-FS-20994 B72-10450 05
Radiation-induced nickel deposits
LEWIS-10965 B72-10456 04
Floating zone process for drawing small diameter fibers of refractory materials
LEWIS-11380 B72-10491 04
Mechanically and thermally stable maser cavity resonator
HQ-10790 B72-10523 01
High strength high modulus ceramic fiber
M-FS-21266 B72-10592 04

CESIUM

Glass technology involved in the manufacture of magnetometer components
GSFC-11283 B72-10132 03

CESIUM ION

Device for measuring electric fields
ARC-10164 B72-10148 03

CESIUM OXIDES

Advanced infrared photomultiplier
M-FS-20941 B72-10152 03

CESIUM 137

Fast response densitometer for measuring liquid density
M-FS-14478 B72-10664 02

CHANNEL FLOW

FORTAN program for generating a two-dimensional orthogonal mesh between two arbitrary boundaries
LEWIS-11863 B72-10753 09

CHARGED PARTICLES

Mass separator for low velocity ions
ARC-10375 B72-10123 03

CHECKOUT

Software control for large scale on-board checkout: A concept
MSC-13977 B72-10015 09
Systems effectiveness evaluation program
HQ-10306 B72-10458 09

CHEMICAL ANALYSIS

Direct analysis of hydrogen/deuterium mixtures: A concept
NPO-11322 B72-10244 03
Oxygen carrier for gas chromatographic analysis of inert gases in propellants
ARC-10574 B72-10249 04
Phosphorus in land-water systems
AEC-10049 B72-10429 05
An improved gas extraction furnace
MSC-14138 B72-10544 04

Immobilized phosphorylase for synthesis of polysaccharides from glucose
ARC-10680 B72-10550 04
Laser mass spectrometer
ARC-10687 B72-10571 03

CHEMICAL ATTACK

Improved zinc oxide thermal control coatings
NPO-11139 B72-10711 04

CHEMICAL BONDS

An improved apochromatic wedge utilizing optical molecular contact bonding
GSFC-11082 B72-10388 03

CHEMICAL COMPOSITION

Titanium alloy stress corrosion cracking in presence of dinitrogen tetroxide
M-FS-21113 B72-10321 04
Synthesis of temperature and solvent-resistant polymers
M-FS-20848 B72-10342 04
Thermally resistant polymers for fuel tank sealants
M-FS-21232 B72-10358 04
Polymeric binder for explosives
AEC-10062 B72-10366 04
Bondability of RTV silicon rubber
AEC-10026 B72-10367 04
Technique for increasing yield of trifluoronitrosomethane-tetrafluoroethylene lymer
ARC-10566 B72-10418 04

Process for synthesizing and formulating condensed ring polymers
LANGLEY-10423 B72-10473 04
Preparation of stable colloidal dispersions in fluorinated liquids
HQ-10580 B72-10529 04
Laser mass spectrometer
ARC-10687 B72-10571 03
Polyimide bonded graphite fluoride: A new long life solid lubricant coating
LEWIS-11864 B72-10628 04
A process yields large quantities of pure ribosome subunits
HQ-10662 B72-10653 05
Breathing-metabolic simulator
HQ-10766 B72-10657 05
Metabolic simulation chamber
HQ-10776 B72-10658 05
Computer program for calculation of complex chemical equilibrium compositions
LEWIS-11714 B72-10718 09

CHEMICAL COMPOUNDS

Solid amine compounds as sorbents for carbon dioxide: A concept
ARC-10571 B72-10421 04
Three bit mass spectral search program
NPO-11960 B72-10747 09

CHEMICAL ELEMENTS

An empirical relationship for the penetration of 1 to 3 MeV electrons
LEWIS-11495 B72-10144 04
Aerotherm chemical equilibrium (ACE) computer program
LEWIS-11722 B72-10739 09

CHEMICAL ENGINEERING

Space-suit carbon dioxide absorption system: A concept
ARC-10546 B72-10168 05

CHEMICAL EQUILIBRIUM

Program to determine radiating, nonadiabatic, inviscid flow over a blunt body by the method of integral relations
LANGLEY-11048 B72-10067 09

Computer program for calculation of complex chemical equilibrium compositions
LEWIS-11714 B72-10718 09

CHEMICAL PROPERTIES

Mercury in the environment
AEC-10048 B72-10233 05
Devolatilization of polymer resins
GSFC-11358 B72-10280 04
Floating zone process for drawing small diameter fibers of refractory materials
LEWIS-11380 B72-10491 04
Immobilized phosphorylase for synthesis of polysaccharides from glucose
ARC-10680 B72-10550 04

CHEMICAL REACTIONS

Flame resistant elastic elastomeric fibers
MSC-13923-4 B72-10005 04
New polyimide polymer has excellent processing characteristics with improved thermo-oxidative and hydrolytic stabilities
LEWIS-11323 B72-10175 04
Insolubilized enzymes for food synthesis
ARC-10568 B72-10247 04
Devolatilization of polymer resins
GSFC-11358 B72-10280 04
Polyimide foams provide thermal insulation and fire protection
ARC-10464 B72-10300 04
Catalyst for sodium chlorate decomposition
ARC-10584 B72-10305 04
Synthesis of temperature and solvent-resistant polymers
M-FS-20848 B72-10342 04
Polymeric binder for explosives
AEC-10062 B72-10366 04
Technique for increasing yield of trifluoronitrosomethane-tetrafluoroethylene lymer
ARC-10566 B72-10418 04

Regenerable metallic oxide systems for removal of carbon dioxide: A concept
ARC-10570 B72-10420 04
Solid amine compounds as sorbents for carbon dioxide: A concept
ARC-10571 B72-10421 04
Phosphonium chloride for thermal storage
ARC-10572 B72-10422 04
Improved magnesia for thermal control coatings
ARC-10677 B72-10424 04
Strengthening lightweight concrete
AEC-10017 B72-10430 04
Electron beam chemistry produces high purity metals
LEWIS-11639 B72-10439 04
Chemical modification of poly(p-phenylene) for use in ablative compositions
ARC-10135 B72-10451 04
Process for synthesizing and formulating condensed ring polymers
LANGLEY-10423 B72-10473 04
Functionally terminated liquid nitroso fluorocarbon terpolymers
M-FS-21539 B72-10493 04
A reusable prepositioned ATP reaction chamber
HQ-10660 B72-10525 05
New type of trifunctional alcohol
NPO-10714 B72-10553 04

- Oxygen plasmas used to synthesize superoxides
 ARC-10686 B72-10570 04
 Chemical kinetics computer program for static and flow reactions
 LEWIS-11467 B72-10580 04
 High strength high modulus ceramic fiber
 M-FS-21266 B72-10592 04
 A process yields large quantities of pure ribosome subunits
 HQ-10662 B72-10653 05
 Automation of Bosch reaction for CO₂ reduction
 M-FS-21674 B72-10666 04
 Ultraviolet and thermally stable polymer compositions
 ARC-10592 B72-10709 04
 Low-void polyimide resins for autoclave processing
 LEWIS-11665 B72-10728 04
- CHEMISORPTION**
 Adhesion theory review
 AEC-10083 B72-10231 04
- CHEMISTRY**
 Three bit mass spectral search program
 NPO-11960 B72-10747 09
- CHEMOTHERAPY**
 Implantable drug therapy device: A concept
 NPO-11934 B72-10708 05
- CHIPS**
 Flexible desk top computers using Large Scale Integration (L.S.I.) chips
 M-FS-21277 B72-10112 01
 Microminiature gas chromatographic column
 ARC-10594 B72-10306 04
 Redundancy approaches in bubble domain memories
 M-FS-21915 B72-10643 01
- CHLORINE**
 Silver-chlorine fuel cell: A concept
 ARC-10491 B72-10221 03
 Titanium alloy stress corrosion cracking in presence of dinitrogen tetroxide
 M-FS-21113 B72-10321 04
 Al/Cl₂ molten salt battery
 HQ-10696 B72-10527 01
- CHLOROPHYLLS**
 Assessment of water pollution by airborne measurement of chlorophyll
 ARC-10648 B72-10566 04
- CHOKES (RESTRICTIONS)**
 Circuit controls turn-on current
 NPO-11339 B72-10079 01
- CHROMATES**
 Glass technology involved in the manufacture of magnetometer components
 GSFC-11283 B72-10132 03
- CHROMATOGRAPHY**
 Simple gas chromatographic system for analysis of microbial respiratory gases
 ARC-10403 B72-10207 03
 Direct analysis of hydrogen/deuterium mixtures: A concept
 NPO-11322 B72-10244 03
- CHROMIUM**
 Efficient wire-grid duplexer-polarized for CO₂ lasers
 GSFC-11403 B72-10440 03
- CHROMIUM ALLOYS**
 Advanced protective coating for superalloys
 LEWIS-11473 B72-10150 04
- A protective coating for stainless steel
 LEWIS-11267 B72-10256 04
 Dispersion-strengthened chromium alloy
 LEWIS-10982 B72-10378 04
- CHROMIUM OXIDES**
 Floating zone process for drawing small diameter fibers of refractory materials
 LEWIS-11380 B72-10491 04
- CHROMIUM STEELS**
 Common bearing material has highest fatigue life at moderate temperature
 LEWIS-11592 B72-10382 04
- CHRONOPHOTOGRAPHY**
 Time-lapse camera for microscopy
 ARC-10423 B72-10125 05
- CIRCADIAN RHYTHMS**
 An ingestible temperature-transmitter
 ARC-10583 B72-10275 01
- CIRCUIT BOARDS**
 Magnetic circuitry mutual coupling probe
 M-FS-21664 B72-10535 02
 A simple, efficient resistance soldering apparatus
 GSFC-10913 B72-10649 08
- CIRCUIT BREAKERS**
 A hybrid electromechanical solid state switch for ac power control
 MSC-14005 B72-10018 02
 Current switch has built-in time delay: A concept
 MSC-17324 B72-10453 01
- CIRCUIT DIAGRAMS**
 Circuit permits independent adjustment of gain and offset at constant input impedance
 ARC-10348 B72-10057 01
 A reliable liquid helium detector
 LEWIS-11487 B72-10145 01
 Low phase-shift amplifier
 NPO-11663 B72-10185 01
 Interferometric measurement of the velocity of radiating particles
 HQ-10371 B72-10495 03
 Pulse-width-modulated device for precision temperature control
 NPO-11407 B72-10507 02
 A compact battery powered digital thermometer
 MSC-14084 B72-10545 02
 Photomultiplier blanking circuit
 ARC-10593 B72-10561 01
 A simplified, compact static shift register
 HQ-10723 B72-10591 02
 Dc motor proportional control system for orthotic devices
 M-FS-21573 B72-10617 05
 A range expanding signal conditioner
 M-FS-21720 B72-10639 02
 Speech therapy and voice recognition instrument
 HQ-10628 B72-10652 05
 Low distortion automatic phase control circuit
 M-FS-21671 B72-10682 02
 New detection method for rolling element and bearing defects
 M-FS-21911 B72-10689 06
 Waveguide switch protector
 NPO-11592 B72-10705 01
 Automatic method of measuring silicon-controlled-rectifier holding current
 LEWIS-11898 B72-10752 02
- CIRCUIT PROTECTION**
 Arc protection system for high-power RF amplifiers
 NPO-1156C B72-10099 02
 New meter probes provide protection from high current power sources at potentials up to 600 volts
 LANGLEY-10804 B72-10455 01
 Photomultiplier blanking circuit
 ARC-10593 B72-10561 01
- CIRCUIT RELIABILITY**
 Magnetic circuitry mutual coupling probe
 M-FS-21664 B72-10535 02
- CIRCUITS**
 A hybrid electromechanical solid state switch for ac power control
 MSC-14005 B72-10018 02
 Solar experiment alignment system
 ARC-10471 B72-10020 03
 Implanted telemeter for electrocardiogram and body temperature
 XAC-08505 B72-10035 05
 Pseudo-saturating power converter
 NPO-11368 B72-10042 01
 A differential ECG amplifier with single-ended output
 ARC-10411 B72-10061 05
 Oxygen pressure control for electrolysis cells
 ARC-10250 B72-10074 02
 Precision voltage regulator
 NPO-11502 B72-10092 01
 Piezoelectric actuator uses sequentially-excited multiple elements: A concept
 NPO-11527 B72-10096 01
 Soldering iron temperature indicator
 NPO-11545 B72-10098 02
 Tornado detector and alarm
 M-FS-20915 B72-10106 01
 Frequency switch keyed oscillator
 ARC-10412 B72-10124 01
 High solar intensity radiometer
 LEWIS-11533 B72-10130 03
 Heart simulator
 M-FS-21609 B72-10131 02
 Standardization and qualification of computer programs for circuit design
 M-FS-21537 B72-10142 09
 Crystal-controlled multivibrator
 NPO-11627 B72-10155 01
 Differential input preamplifier
 ARC-10489 B72-10165 01
 Temperature compensation of light-emitting diodes
 ARC-10467 B72-10218 01
 Driver circuit for inductive loads
 ARC-10073 B72-10268 01
 Lightning flash detection system
 ARC-10562 B72-10272 02
 Vidicon storage tube electrical input/output
 MSC-14053 B72-10285 02
 Control of oscillations in a discharge circuit
 ARC-10556 B72-10304 01
 Guidelines for fabrication of hybrid microcircuits
 M-FS-21964 B72-10393 01
 Ultrasonic bone densitometer
 M-FS-20994 B72-10450 05
 Amplifier for signal from thin film transducer
 LEWIS-11494 B72-10463 01
 Specification guidelines for hybrid microcircuits
 M-FS-22090 B72-10474 01

- A magnetic mouse activity meter
HQ-10664 872-10482 05
- Electronic circuit detects left ventricular ejection events in cardiovascular system
LEWIS-11581 872-10512 05
- Electronic integrator for gyro rate output voltages
NPO-11499 872-10555 01
- Redundancy approaches in bubble domain memories
M-FS-21915 872-10643 01
- Diode-quad bridge for reactive transducers and FM discriminators
ARC-10364 872-10691 01
- Waveguide switch protector
NPO-11592 872-10705 01
- Analysis of circuits including magnetic cores (MTRAC)
NPO-11494 872-10724 02
- Frequency-to-amplitude converter: A concept
MSC-12395 872-10729 01
- Improved measurement of depth perception
M-FS-14133 872-10730 05
- CIRCULAR ORBITS**
Interplanetary Trajectories, Encke Method (ITEM)
GSFC-11576 872-10604 09
- CIRCULAR TUBES**
Velocity accelerator for particles
NPO-11349 872-10082 03
- CIRCULATION**
Closed-cycle power supply for fluidic control systems
ARC-10480 872-10163 06
- Ear oximeter-transducer monitors four physiological responses
XAC-05422 872-10224 05
- Oxygen reclamation with solid oxide electrolytes
ARC-10487 872-10273 03
- CLAMPS**
Chuck for delicate drills
ARC-10660 872-10414 07
- Ultrasonic bone densitometer
M-FS-20994 872-10450 05
- Vise to hold bones or other irregular objects
ARC-10679 872-10569 07
- CLEANERS**
Potentiometer, constant tension and lubrication device
KSC-10723 872-10541 02
- CLEANING**
Dry ice plug for hydraulic and pneumatic pipe flushing
MSC-12548 872-10496 06
- CLOCKS**
Method to determine vented electrochemical cell quality
GSFC-11216 872-10396 04
- CLOSED CIRCUIT TELEVISION**
Cine recording ophthalmoscope
ARC-10399 872-10189 05
- CLOSED CYCLES**
Closed-cycle power supply for fluidic control systems
ARC-10480 872-10163 06
- CLOSED ECOLOGICAL SYSTEMS**
Carbon dioxide concentrator
ARC-10245 872-10194 05
- Oxygen reclamation with solid oxide electrolytes
ARC-10487 872-10273 03
- Trace contaminant adsorption and sorbent regeneration in closed ecological systems
LANGLEY-10681 872-10328 04
- CLUTCHES**
Stem clutch for motor driven valve
LRL-10032 872-10345 07
- COAL**
Fluidized-bed combustion reduces atmospheric pollutants
AEC-10085 872-10431 04
- COATINGS**
Electrodes for sealed secondary batteries
ARC-10238 872-10050 02
- Oxygen-layer structure improves lithium-doped silicon solar cells
NPO-11403 872-10085 03
- Simple gas chromatographic system for analysis of microbial respiratory gases
ARC-10403 872-10207 03
- Nonflammable potting, encapsulating and/or conformal coating compound
MSC-13499 872-10337 04
- Laser beam deflection control: A concept
MSC-13814 872-10411 02
- Sintered diamond compacts using metallic cobalt binders
HQ-10706 872-10519 04
- Photoemissive coating
M-FS-22003 872-10638 08
- COAXIAL CABLES**
Heart catheter cable and connector
ARC-10406 872-10200 05
- COAXIAL FLOW**
Coaxial inverted geometry epitaxial transistor
ARC-10330 872-10056 01
- Two-stage coaxial gas compressor
ARC-10426 872-10210 06
- COBALT**
Sintered diamond compacts using metallic cobalt binders
HQ-10706 872-10519 04
- COBALT ALLOYS**
Advanced protective coating for superalloys
LEWIS-11473 872-10150 04
- Common bearing material has highest fatigue life at moderate temperature
LEWIS-11592 872-10382 04
- Advanced alloy design technique: High temperature cobalt base superalloy
LEWIS-10436 872-10514 04
- COBALT OXIDES**
Catalyst for sodium chlorate decomposition
ARC-10584 872-10305 04
- COCKPITS**
Roll function in a flight simulator
ARC-10557 872-10417 02
- CODING**
GPEDIT
GSFC-11308 872-10620 09
- COEFFICIENT OF FRICTION**
Longitudinal friction forces in piping design
M-FS-13754 872-10103 01
- COEFFICIENTS**
Mechanically and thermally stable maser cavity resonator
HQ-10790 872-10523 01
- COHERENT LIGHT**
Particle detection with intensified laser beam
HQ-10645 872-10516 03
- COHERENT RADIATION**
Transmission of optical frequencies with minimal losses
HQ-10541 872-10389 03
- Particle detection with intensified laser beam
HQ-10645 872-10516 03
- Measurement of electron density and temperature in plasmas
ARC-10598 872-10563 03
- COILS**
Thermal analog device reduces machining errors
AEC-10080 872-10237 08
- Energy absorber uses expanded coiled tube
AEC-10044 872-10239 06
- Alternating current losses in superconducting coils
M-FS-21129 872-10360 03
- COKE**
Fluidized-bed combustion reduces atmospheric pollutants
AEC-10085 872-10431 04
- COLD GAS**
Adaptive position control loop
ARC-10255 872-10052 02
- Gas leak-detection system
NPO-11405 872-10087 03
- COLLIMATION**
An improved apochromatic wedge utilizing optical molecular contact bonding
GSFC-11082 872-10388 03
- A new low-cost method for producing collimating mirrors
LEWIS-11553 872-10513 08
- COLLIMATORS**
Solar experiment alignment system
ARC-10471 872-10020 03
- Solar sensor with autocollimator
ARC-10148 872-10192 03
- Interferometric rotation sensor
ARC-10278 872-10274 03
- COLLOIDS**
Insolubilized enzymes for food synthesis
ARC-10568 872-10247 04
- COLOR**
Angular velocity and acceleration meter
LEWIS-11466 872-10183 06
- Optical device for producing color line scan display from monochrome oscilloscope traces
LANGLEY-10896 872-10375 03
- Silver stain for electron microscopy
ARC-10661 872-10415 05
- Carbon dioxide concentration indicator
HQ-10582 872-10526 05
- A visual-display and storage device
GSFC-10901 872-10647 02
- COLOR CENTERS**
Improved magnesia for thermal control coatings
ARC-10677 872-10424 04
- COLOR PHOTOGRAPHY**
A rapid, precise, reciprocating-movement color filter system
GSFC-11255 872-10497 07
- COLUMNS (PROCESS ENGINEERING)**
Insolubilized enzymes for food synthesis
ARC-10568 872-10247 04
- Microminiature gas chromatographic column
ARC-10594 872-10306 04

- A permeable rotating-wheel solvent extractor
LRL-10033 872-10343 04
- COMBUSTION**
Remote control flare stack igniter for combustible gases
M-FS-21675 872-10352 07
Chemical kinetics computer program for static and flow reactions
LEWIS-11467 872-10580 04
- COMBUSTION CHAMBERS**
Airflow distribution control for improved turbine engine performance
LEWIS-11593 872-10178 07
Turbulent mixing film cooling correlation
LEWIS-11417 872-10326 07
Zone radiometer measurements on a model rocket exhaust plume
M-FS-21693 872-10357 02
Analysis and computer programs to calculate acoustic wave properties of baffled chambers
LEWIS-11529 872-10577 09
Metabolic simulation chamber
HQ-10776 872-10658 05
- COMBUSTION EFFICIENCY**
Air assist fuel nozzle reduces aircraft gas turbine engine emissions at idle operation
LEWIS-11512 872-10434 07
- COMBUSTION PHYSICS**
Fluidic systems may improve combustion in automotive engines
ARC-10582 872-10250 06
Zone radiometer measurements on a model rocket exhaust plume
M-FS-21693 872-10357 02
Air assist fuel nozzle reduces aircraft gas turbine engine emissions at idle operation
LEWIS-11512 872-10434 07
- COMBUSTION PRODUCTS**
Advanced protective coating for superalloys
LEWIS-11473 872-10150 04
Zone radiometer measurements on a model rocket exhaust plume
M-FS-21693 872-10357 02
Fluidized-bed combustion reduces atmospheric pollutants
AEC-10085 872-10431 04
Air assist fuel nozzle reduces aircraft gas turbine engine emissions at idle operation
LEWIS-11512 872-10434 07
Squib-operated disconnect
NPO-11330 872-10713 06
- COMBUSTION STABILITY**
Analysis and computer programs to calculate acoustic wave properties of baffled chambers
LEWIS-11529 872-10577 09
- COMMAND SERVICE MODULES**
Airlock caution and warning system
M-FS-21576 872-10467 02
- COMMERCIAL AIRCRAFT**
Survey of aircraft electrical power systems
LEWIS-11678 872-10383 02
- COMMUNION**
Plasma calcining of pigment particles for thermal control coatings
M-FS-21267 872-10320 04
- COMMUNICATION**
A study of the power spectral density of an FM signal
M-FS-21070 872-10361 02
- COMMUNICATION EQUIPMENT**
Broadband RF-distribution amplifier
NPO-11401 872-10245 01
Low distortion automatic phase control circuit
M-FS-21671 872-10682 02
- COMPACTING**
Determination of impact sensitivity of materials at high pressures
MSC-13700 872-10216 07
New compression molding process of thermosetting plastic compounds
LANGLEY-10782 872-10356 08
- COMPARATOR CIRCUITS**
Topological solution of bilateral switching networks
ARC-10294 872-10055 01
- COMPATIBILITY**
Use of thin plastic films at cryogenic temperatures
LEWIS-11047 872-10038 04
- COMPENSATORS**
Optical shutter for use in shock tubes
ARC-10516 872-10128 03
A piezoelectrically actuated ball valve
ARC-10338 872-10204 06
Titanium reinforced boron polyimide composite
M-FS-21916 872-10353 04
Compensator design for low-sensitivity linear time-invariant systems (COMPDES)
M-FS-21652 872-10486 09
- COMPILERS**
Standardization and qualification of computer programs for circuit design
M-FS-21537 872-10142 09
- COMPONENT RELIABILITY**
Electronic switching circuit uses complementary non-linear components
AEC-10060 872-10236 01
- COMPOSITE MATERIALS**
Specimen for high-temperature tensile tests
ARC-10531 872-10028 04
Structural design and stress analysis program for advanced composite filament-wound axisymmetric pressure vessels (COMTANK)
NPO-11943 872-10073 09
Nondestructive-test standards for evaluation of fiber-reinforced composites
M-FS-21288 872-10157 04
New polyimide polymer has excellent processing characteristics with improved thermo-oxidative and hydrolytic stabilities
LEWIS-11323 872-10175 04
Superior cryogenic insulation developed
M-FS-21560 872-10187 04
Improved method for producing metal-reinforced ceramics
AEC-10070 872-10234 04
Graphite and boron-reinforced composite materials data summary
M-FS-21691 872-10294 04
Inorganic glass ceramic slip rings
M-FS-20711 872-10313 04
Fabrication of uniaxial filament-reinforced epoxy tubes for structural application
LANGLEY-10203 872-10340 04
- Titanium reinforced boron polyimide composite
M-FS-21916 872-10353 04
Fabrication of carbon film composites for high-strength structures
ARC-10613 872-10423 04
Chemical modification of poly(p-phenylene) for use in ablative compositions
ARC-10135 872-10451 04
Phase-change materials handbook
M-FS-22064 872-10464 04
Magnets with stabilized conductors
HQ-10727 872-10465 03
Equations to assess the impact resistance of fiber composites
LEWIS-11486 872-10503 04
- COMPOSITE STRUCTURES**
Thermally stable structural framework
ARC-10612 872-10252 08
Composite casting demonstration
M-FS-21668 872-10266 04
Boron aluminum composite structures
M-FS-21571 872-10386 04
- COMPOUNDS**
Improved synthesis of intermetal compounds
HQ-10690 872-10172 04
- COMPRESSED AIR**
Fluidic pressure regulators
ARC-10474 872-10162 06
- COMPRESSED GAS**
Gas leak-detection system
NPO-11405 872-10087 03
Two-stage coaxial gas compressor
ARC-10426 872-10210 06
- COMPRESSIBILITY EFFECTS**
A sonic transducer to detect fluid leaks
KSC-10704 872-10376 01
- COMPRESSIBLE FLOW**
Computer program for natural gas flow through nozzles
LEWIS-11534 872-10362 09
Sonic limitations and startup problems of heat pipes
AEC-10036 872-10368 03
- COMPRESSING**
Weight simulator
ARC-10100 872-10046 05
Development of a polyimide for use as a temperature and solvent resistant sealant
M-FS-21325 872-10262 04
New compression molding process of thermosetting plastic compounds
LANGLEY-10782 872-10356 08
A stagnation pressure probe for use in supersonic flow
LANGLEY-11139 872-10543 06
- COMPRESSION LOADS**
Method of determining thermal conductivity in multi-layer insulation systems
M-FS-20213 872-10154 03
- COMPRESSION TESTS**
Deflection resistance indicator
M-FS-24010 872-10401 04
- COMPRESSIVE STRENGTH**
Zero-leakage valves
ARC-10506 872-10024 06
Graphite and boron-reinforced composite materials data summary
M-FS-21691 872-10294 04
Deflection resistance indicator
M-FS-24010 872-10401 04
Strengthening lightweight concrete
AEC-10017 872-10430 04

SUBJECT INDEX

COMPRESSOR ROTORS

Freon 21 bearing lubrication and coolant system
HQ-10302 B72-10651 06

COMPRESSORS

High speed, self-acting, face-contact shaft seal has low leakage and very low wear
LEWIS-11598 B72-10114 07

Two-stage coaxial gas compressor
ARC-10426 B72-10210 06

FORTAN program for computing coordinates of circular-arc, single and tandem, turbine and compressor, blade sections on a plane
LEWIS-11237 B72-10405 09

COMPTON EFFECT

A Compton scatter attenuation gamma ray spectrometer
M-FS-21441 B72-10487 03

COMPUTATION

Carbon monoxide oxidation rates computed for automobile thermal reactor conditions
LEWIS-11638 B72-10137 04

COMPUTER COMPONENTS

Improved feedback shift register
NPO-10351 B72-10226 01

COMPUTER DESIGN

Memory reduction through higher level language hardware
M-FS-21128 B72-10350 09

COMPUTER GRAPHICS

Program to produce horizontal stereographic print maps from Nimbus HRIR data
GSFC-11397 B72-10606 09

Integrated multi-path program analysis and cost technique (IMPACT)
M-FS-21880 B72-10676 09

COMPUTER PROGRAMMING

Variable dimension automatic synthesis programs (VASP)
ARC-10616 B72-10065 09

Cubic spline functions for curve fitting
LRL-10034 B72-10311 09

Systems effectiveness evaluation program
HQ-10306 B72-10458 09

Analysis of microsize particulates
ARC-10647 B72-10565 04

Redundant data management system
M-FS-21831 B72-10589 09

System/360 Computer Assisted Network Scheduling (CANS) System
GSFC-10909 B72-10599 09

Chrysler improved numerical differencing analyzer for third generation computers
CINDA-3G

MSC-11653 B72-10721 09

Three bit mass spectral search program
NPO-11960 B72-10747 09

COMPUTER PROGRAMS

Prediction of ducted fan performance
ARC-10615 B72-10064 09

Program to determine radiating, nonadiabatic, inviscid flow over a blunt body by the method of integral relations
LANGLEY-11048 B72-10067 09

Program for the transient response of ablating axisymmetric bodies including the effects of shape change
LANGLEY-11049 B72-10068 09

Design of two-dimensional sharp-edged-throat supersonic nozzle with boundary-layer correction
LEWIS-11636 B72-10070 09

Program for determination of radiation interchange factors
MSC-17563 B72-10071 09

Wind trajectory tracing for air pollution studies (AIRPOL)
NPO-11892 B72-10072 09

Structural design and stress analysis program for advanced composite filament-wound axisymmetric pressure vessels (COMTANK)
NPO-11943 B72-10073 09

Longitudinal friction forces in piping design
M-FS-13754 B72-10103 01

Program for calculating laminar and turbulent boundary layers in arbitrary pressure gradients
LEWIS-11097 B72-10111 09

Selecting digital filters
M-FS-20933 B72-10156 01

Overlay board for control consoles
ARC-10007 B72-10191 02

Computer program draws three-dimensional surfaces
LEWIS-10482 B72-10253 09

Snap dynamics
M-FS-21531 B72-10265 09

Rapid analysis of electric propulsion missions
ARC-10430 B72-10299 09

Analysis of thermal stress and metal movement during welding
M-FS-20984 B72-10333 04

Acoustic spectral analysis and testing techniques
NPO-11554 B72-10341 03

FORTAN program for computing coordinates of circular-arc, single and tandem, turbine and compressor, blade sections on a plane
LEWIS-11237 B72-10405 09

Program to determine space vehicle response to wind turbulence
M-FS-21614 B72-10410 09

Variable boundary II heat conduction
LEWIS-10679 B72-10444 09

Systems effectiveness evaluation program
HQ-10306 B72-10458 09

Computer program for calculating the temperature field of face seals
LEWIS-11110 B72-10483 09

Compensator design for low-sensitivity linear time-invariant systems (COMPDES)
M-FS-21652 B72-10486 09

Geometrically nonlinear static and dynamic analysis of arbitrarily loaded shells of revolution
LANGLEY-11109 B72-10504 09

Analysis and computer programs to calculate acoustic wave properties of baffled chambers
LEWIS-11529 B72-10577 09

Loudness (annoyance), prediction procedure for steady sounds
LEWIS-11761 B72-10579 05

Chemical kinetics computer program for static and flow reactions
LEWIS-11467 B72-10580 04

Computer method for identification of boiler transfer functions
LEWIS-11808 B72-10582 09

Computer programs for the design of liquid-to-liquid jet pumps
LEWIS-11679 B72-10584 09

Computer program for fitting low-order polynomial splines by method of least squares
LEWIS-11651 B72-10585 09

Computer program for quasi-three-dimensional calculation of surface velocities and choking flow for turbomachine blade rows
LEWIS-11635 B72-10586 09

Significance arithmetic experimental package (SIGPAC)
GSFC-11499 B72-10600 09

Study of high altitude plume impingement
M-FS-21414 B72-10601 09

Response of a panel structure to reverberant acoustic excitation
M-FS-21774 B72-10603 06

Interplanetary Trajectories, Encke Method (ITEM)
GSFC-11576 B72-10604 09

Propulsion sizing program
MSC-14016 B72-10605 09

Program to produce horizontal stereographic print maps from Nimbus HRIR data
GSFC-11397 B72-10606 09

Automatic computer subprogram selection from application-program libraries - ALTLIB
LANGLEY-11124 B72-10607 09

Two autowire versions for CDC-3200 and IBM-360
GSFC-11526 B72-10608 09

Computer program analyzes and monitors electrical power systems (POSIMO)
GSFC-11505 B72-10610 09

Spectral analysis of multiple time series
M-FS-18859 B72-10614 09

Vortex-lattice FORTRAN program for estimating subsonic aerodynamic characteristics of complex planforms
LANGLEY-11047 B72-10618 09

Source deck compression and update program (CAPS)
GSFC-11545 B72-10619 09

GPEDIT
GSFC-11308 B72-10620 09

Water impact loads
M-FS-21955 B72-10621 09

Method for nonlinear exponential regression analysis
M-FS-21965 B72-10622 09

FORTAN manpower account program
NPO-11973 B72-10623 09

Computer program to generate attitude error equations for a gimbal platform
M-FS-21991 B72-10624 09

Program to reduce the size of structural matrices
MSC-17619 B72-10625 09

Computer program for afterheat temperature distribution for mobile nuclear power plant
LEWIS-11693 B72-10634 09

Vibrational transfer functions for complex structures
M-FS-20744 B72-10648 09

Program for creating an operating system generation cross reference index (SGINDEX)
GSFC-11612 B72-10650 09

- Analytic procedures for determining dimensional redundancies in electronic devices
 HQ-10709 872-10656 09
 Geometric field-line calculations
 GSFC-11597 872-10674 09
 Mathematical analysis for the performance assessment of space communication parameters, IBM-360 version
 GSFC-11523 872-10675 09
 Propellant feed systems transients
 MSC-17848 872-10677 06
 Computer program for calculation of complex chemical equilibrium compositions
 LEWIS-11714 872-10718 09
 Optimization of fluid line sizes with pumping power penalty IBM-360 computer program
 MSC-17930 872-10722 06
 Analysis of circuits including magnetic cores (MTRAC)
 NPO-11494 872-10724 02
 Optimizing designs of two-level factorial experiments given partial prior information (NAMER)
 LEWIS-11708 872-10726 09
 Aerotherm chemical equilibrium (ACE) computer program
 SINDA, systems improved numerical differencing analyzer
 MSC-13805 872-10736 09
 LEWIS-11722 872-10739 09
 Design of microstrip components by computer
 LANGLEY-11210 872-10741 01
 Final report on a study of low-density nozzle flows, with application to microthrust rockets
 HQ-10761 872-10748 06
 Effects of nonuniform swash-plate stiffness on coupled blade-control system dynamics and stability
 LANGLEY-11068 872-10749 06
 FORTRAN read package
 MSC-14161 872-10750 09
 FORTRAN program for generating a two-dimensional orthogonal mesh between two arbitrary boundaries
 LEWIS-11863 872-10753 09
- COMPUTER STORAGE DEVICES**
 Variable dimension automatic synthesis programs (VASP)
 ARC-10616 872-10065 09
 Manganese bismuth thin film for large capacity digital memories
 M-FS-21246 872-10107 03
 Flexible desk top computers using Large Scale Integration (LSI) chips
 M-FS-21277 872-10112 01
 Memory reduction through higher level language hardware
 M-FS-21128 872-10350 09
 A visual-display and storage device
 GSFC-10901 872-10647 02
 Optimal read/write memory system components
 M-FS-22044 872-10697 01
- COMPUTER SYSTEMS PROGRAMS**
 Reliability analysis based on operational success criteria
 ARC-10490 872-10214 09
 Optimization technique for problems with an inequality constraint
 ARC-10522 872-10222 09
 FORTRAN read package
 MSC-14161 872-10750 09
- COMPUTER TECHNIQUES**
 Memory reduction through higher level language hardware
 M-FS-21128 872-10350 09
 High speed sequential decoder
 ARC-10657 872-10568 09
 Program for creating an operating system generation cross reference index (SGINDEX)
 GSFC-11612 872-10650 09
 Acoustical analysis system
 GSFC-11087 872-10751 02
- COMPUTERIZED DESIGN**
 Computer programs for the design of liquid-to-liquid jet pumps
 LEWIS-11679 872-10584 09
 Two autowire versions for CDC-3200 and IBM-360
 GSFC-11526 872-10608 09
 Computer program for calculation of complex chemical equilibrium compositions
 LEWIS-11714 872-10718 09
 Design of microstrip components by computer
 LANGLEY-11210 872-10741 01
- COMPUTERIZED SIMULATION**
 Urban air pollution dispersion model
 AEC-10004 872-10003 03
 Adaptive position control loop
 ARC-10255 872-10052 02
 Main tank injection pressurization program
 LEWIS-11368 872-10069 09
- COMPUTERS**
 Techniques for improving reliability of computers
 M-FS-21326 872-10109 02
 Flexible desk top computers using Large Scale Integration (LSI) chips
 M-FS-21277 872-10112 01
 Video information system
 M-FS-21711 872-10267 09
 Electronic circuit detects left ventricular ejection events in cardiovascular system
 LEWIS-11581 872-10512 05
- CONCENTRATORS**
 Conical electromagnetic radiation flux concentrator
 M-FS-21613 872-10147 03
 Carbon dioxide concentrator
 ARC-10245 872-10194 05
 Aircrew oxygen system
 ARC-10247 872-10195 05
- CONCENTRICITY**
 Angular velocity and acceleration meter
 LEWIS-11466 872-10183 06
- CONCRETES**
 Strengthening lightweight concrete
 AEC-10017 872-10430 04
- CONDENSATION**
 Feedback control of variable conductance heat pipes
 ARC-10460 872-10169 03
 Liquid methane gelled with methanol and water reduces rate of nitrogen absorption
 LEWIS-11574 872-10330 06
 Thermal-powered reciprocating pump
 NPO-11417 872-10723 06
- CONDENSERS**
 Particle detection by a light-scattering technique
 ARC-10384 872-10160 03
- CONDENSERS (LIQUIFIERS)**
 An electrohydrodynamic heat pipe
 ARC-10601 872-10251 03
- CONDENSING**
 Promotion of dropwise condensation of ethyl alcohol, methyl alcohol, and acetone by polytetrafluoroethylene
 LANGLEY-10940 872-10115 04
 Closed-cycle power supply for fluidic control systems
 ARC-10480 872-10163 06
 Restartable heat pipe
 ARC-10198 872-10188 03
- CONDUCTION**
 Vibrating ribbon bolometer: A concept
 XAC-10768 872-10170 03
- CONDUCTIVE HEAT TRANSFER**
 Insulating effectiveness of self-spacing dimpled foil
 LEWIS-10941 872-10406 04
 Fabrication of cooled, graphite-lined structures
 LEWIS-11741 872-10593 08
- CONDUCTORS**
 High voltage protection network
 ARC-10197 872-10119 02
 Miniature intermittent contact switch
 ARC-10450 872-10271 01
- CONES**
 Conical electromagnetic radiation flux concentrator
 M-FS-21613 872-10147 03
 High efficiency collector for microwave tubes
 LEWIS-11192 872-10259 03
- CONFIDENCE LIMITS**
 Performance of silicon solar cell assemblies
 NPO-11847 872-10186 01
- CONICAL BODIES**
 Rising-plate rheometer
 ARC-10524 872-10026 03
 Water impact loads
 M-FS-21955 872-10621 09
- CONNECTORS**
 Heart catheter cable and connector
 ARC-10406 872-10200 05
- CONSTANTAN**
 Thermocouple tape
 LEWIS-11072 872-10515 04
- CONSTANTS**
 Optimization technique for problems with an inequality constraint
 ARC-10522 872-10222 09
- CONSTRAINTS**
 Low-friction ball-and-socket
 NPO-11348 872-10081 08
 Optimization technique for problems with an inequality constraint
 ARC-10522 872-10222 09
 Restraint and locomotion aid
 ARC-10153 872-10558 06
- CONSTRUCTION MATERIALS**
 Strengthening lightweight concrete
 AEC-10017 872-10430 04
 Flexible shielding system for radiation protection
 LRL-10028 872-10500 03
- CONTAINERS**
 Prolate spheroidal slosh model for fluid motion
 MSC-13864 872-10182 09
 Tool carrier
 M-FS-21469 872-10319 07

CONTAMINANTS

- Urban air pollution-dispersion model
AEC-10004 872-10003 03
- Wind trajectory tracing for air pollution studies (AIRPOL)
NPO-11892 872-10072 09
- Vortex servovalve for fluidic or electrical input
ARC-10155 872-10173 07
- Manufacturing contamination prevention handbook
M-FS-19113 872-10394 08
- Microbiological surface sampling cart
LANGLEY-11069 872-10395 05
- Purification of contaminated water by filtration through porous glass
ARC-10655 872-10412 04
- Improved method for reclaiming vacuum diffusion pump oil
LEWIS-11647 872-10511 04
- Improved sampling of compressed gases for condensable hydrocarbon content
KSC-10304 872-10540 06
- Improved transmittance measurement with a magnesium oxide coated integrating sphere
LEWIS-11840 872-10717 04

CONTAMINATION

- Advanced infrared photomultiplier
M-FS-20941 872-10152 03
- Study of in-situ degradation of thermal control surfaces
M-FS-20892 872-10336 04
- Filter cassette for high volume air sampler
LEWIS-11469 872-10379 03
- Manufacturing contamination prevention handbook
M-FS-19113 872-10394 08
- Microbiological surface sampling cart
LANGLEY-11069 872-10395 05
- Radiological control manual
M-FS-22092 872-10460 03
- Efficient baffle prevents oil backstreaming in diffusion pumps
LRL-10025 872-10475 07

CONTINUUM FLOW

- Sonic limitations and startup problems of heat pipes
AEC-10036 872-10368 03

CONTRACT MANAGEMENT

- FORTAN manpower account program
NPO-11973 872-10623 09

CONTRACTION

- A monostrain test apparatus
M-FS-24221 872-10679 06

CONTROL

- Closed-cycle power supply for fluidic control systems
ARC-10480 872-10163 06

CONTROL BOARDS

- Overlay board for control consoles
ARC-10007 872-10191 02

CONTROL EQUIPMENT

- Software control for large scale on-board checkout: A concept
MSC-13977 872-10015 09
- Airflow distribution control for improved turbine engine performance
LEWIS-11593 872-10178 07
- Continuous monitor for gas ratios in a mixture
LEWIS-11095 872-10229 05
- A valve concept for remote fluid flow control
M-FS-16097 872-10400 07

- Airlock caution and warning system
M-FS-21576 872-10467 02
- Neutron radiographic viewing system
M-FS-22024 872-10468 02
- Automatic air flow control in air conditioning ducts
GSFC-11445 872-10490 06
- A rapid, precise, reciprocating-movement color filter system
GSFC-11255 872-10497 07
- Patient's breath controls comfort devices
LANGLEY-11138 872-10533 05

CONTROL STABILITY

- A cable stabilizer for outdoor elevators
KSC-10513 872-10283 07

CONTROL THEORY

- Adaptive position control loop
ARC-10255 872-10052 02
- Closed-cycle power supply for fluidic control systems
ARC-10480 872-10163 06

CONTROL VALVES

- Propellant-powered actuator for gas generators
ARC-10484 872-10008 03
- Laboratory leak tester provides high sensitivity
AEC-10042 872-10240 03
- Improved temperature control of liquid cooling garments
MSC-13917 872-10281 05
- Combination throttle and shutoff valve
M-FS-21513 872-10287 07
- Ball detent mechanism
M-FS-21735 872-10470 07

CONTROLLED ATMOSPHERES

- Real-time pair-feeding of animals
ARC-10302 872-10298 05

CONVECTION

- Evaluation of jet engine noise
M-FS-21416 872-10263 03
- Composite casting demonstration
M-FS-21668 872-10266 04

COOLING

- Hydraulic modeling of heat dispersion in large lakes
AEC-10003 872-10039 03
- Alternating current losses in superconducting coils
M-FS-21129 872-10360 03
- Temperature control of a cryogenic bath
HQ-10788 872-10532 03
- Design criteria monograph for high-load high-speed rolling-contact bearings
LEWIS-11823 872-10627 04

COOLING SYSTEMS

- Airflow distribution control for improved turbine engine performance
LEWIS-11593 872-10178 07
- Thermal control for storage of cryogenic propellants in a multiple-tank system: A concept
ARC-10560 872-10278 03
- A cryopump for cooling objects at a distance
LRL-10031 872-10314 03
- Turbopump thermodynamic cooling
M-FS-21597 872-10408 06
- Solar powered absorption cycle heat pump using phase change materials for energy storage
M-FS-21927 872-10615 06
- Fill and vent quick disconnect
M-FS-21822 872-10645 07

- Freon 21 bearing lubrication and coolant system
HQ-10302 872-10651 06

COORDINATES

- Indefinite integrals of products of some exponential and trigonometric functions
LEWIS-11493 872-10225 09

COORDINATION POLYMERS

- Technique for increasing yield of trifluoroni-trosomethane-tetrafluoroethylene lymer
ARC-10566 872-10418 04

COPOLYMERS

- Ultraviolet and thermally stable polymer compositions
ARC-10592 872-10709 04

COPPER

- Optical shutter for use in shock tubes
ARC-10516 872-10128 03
- Annular objective apertures improve resolution of electron microscopes
ARC-10448 872-10171 03
- Cryogenic gel flow viscometer
ARC-10523 872-10180 03
- Restartable heat pipe
ARC-10198 872-10188 03
- Repeatable method of thermal stress fracture test of brittle materials
NUC-11019 872-10258 06
- Explosive cord
M-FS-21928 872-10293 08
- A sensitive image intensifier which uses inert gas
LRL-10024 872-10312 03
- Inorganic glass ceramic slip rings
M-FS-20711 872-10313 04
- A cryopump for cooling objects at a distance
LRL-10031 872-10314 03
- Magnetic-doped alloys with very large Seebeck coefficients
M-FS-21410 872-10318 04
- Magnets with stabilized conductors
HQ-10727 872-10465 03
- Thermocouple tape
LEWIS-11072 872-10515 04

COPPER ALLOYS

- High-intensity source of extreme ultraviolet
HQ-10754 872-10528 03

COPPER COMPOUNDS

- Alternating current losses in superconducting coils
M-FS-21129 872-10360 03

CORDAGE

- Cylindrically shaped rope ladder
M-FS-16319 872-10688 07

CORE SAMPLING

- Planetary rock corer and drill concepts
NPO-11416 872-10398 07

CORE STORAGE

- Optimal read/write memory system components
M-FS-22044 872-10697 01

CORES

- Three bit mass spectral search program
NPO-11960 872-10747 09

CORRECTION

- Optical alignment of electrodes on electrical discharge machines
XAC-09489 872-10036 07

CORRELATION

- Turbulent mixing film cooling correlation
LEWIS-11417 872-10326 07

CORROSION

Adhesion theory review
AEC-10083 B72-10231 04

CORROSION PREVENTION

Low cost anti-galling bushings
LEWIS-11724 B72-10359 08

CORROSION RESISTANCE

Al/C12 molten salt battery
HQ-10696 B72-10527 01

COSMIC DUST

Analysis of microsize particulates
ARC-10647 B72-10565 04

COSMIC RAYS

A liquid radiation detector with high spatial resolution
MSC-13965 B72-10034 03

COST ANALYSIS

FORTMAN manpower account program
NPO-11973 B72-10623 09
A linear programming manual
HQ-10743 B72-10671 09
Integrated multi-path program analysis and cost technique (IMPACT)
M-FS-21880 B72-10676 09

COST EFFECTIVENESS

Urban air pollution dispersion model
AEC-10004 B72-10003 03
Survey of information concerning large diameter deep hole drilling
AEC-10051 B72-10238 08
Low cost anti-galling bushings
LEWIS-11724 B72-10359 08
Design criteria monograph for pressurized metal cases
LEWIS-11835 B72-10633 04

COST ESTIMATES

Survey of information concerning large diameter deep hole drilling
AEC-10051 B72-10238 08
Optimization of fluid line sizes with pumping power penalty IBM-360 computer program
MSC-17930 B72-10722 06

COST REDUCTION

Three-point compound sine plate offers cost and weight savings
MSC-15818 B72-10118 07
Improved synthesis of intermetal compounds
HQ-10690 B72-10172 04
Flexible, low-cost silicon solar cell arrays
LEWIS-11069 B72-10177 02
Technique for producing wind-tunnel heat-transfer models
ARC-10658 B72-10349 08
Small, low cost, artificial kidney
AEC-10011 B72-10371 05
A new low-cost method for producing collimating mirrors
LEWIS-11553 B72-10513 08
A linear programming manual
HQ-10743 B72-10671 09

COSTS

A tool for measuring elevator cable tension
KSC-10708 B72-10509 07
Built-in bleeder system in laminated plastic structures
MSC-17713 B72-10562 08

COUNTERS

New reaction tester accurate within 56 microseconds
MSC-13604 B72-10031 05
An improved aesthesiometer
MSC-13609 B72-10032 05

A liquid radiation detector with high spatial resolution
MSC-13965 B72-10034 03

Flexible desk top computers using Large Scale Integration (LSI) chips
M-FS-21277 B72-10112 01

A manually set magnetic wire counter
AEC-10039 B72-10369 01
Indexing film with a fluidic sensor
MSC-14117 B72-10501 02

COUNTING CIRCUITS

Speed enhancement of complementary MOS devices
ARC-10387 B72-10184 01
Amplifier for signal from thin film transducer
LEWIS-11494 B72-10463 01

COUPLED MODES

Technique for increasing yield of trifluoromethane-tetrafluoroethylene lymer

ARC-10566 B72-10418 04

COUPLERS

Properties of ionization breakdown of air at microwave frequencies and optimization of component dimensions for maximum microwave power
M-FS-21924 B72-10316 01

COUPLINGS

Interconnections for fluidic circuits
ARC-10481 B72-10164 02
Improved high-temperature gimbal joint
LEWIS-11705 B72-10489 06
Flexible thermal device
M-FS-21630 B72-10612 04
Fill and vent quick disconnect
M-FS-21822 B72-10645 07

COVALENT BONDS

Covalent bonding of antibodies of polystyrene latex beads: A concept
MSC-13906 B72-10006 05

COVERINGS

Pressure sensitive gas flow meter
ARC-10219 B72-10049 06
Multipurpose top for liquid helium Dewar
ARC-10533 B72-10302 03
An economical vent cover
M-FS-20692 B72-10348 07
Filter cassette for high volume air sampler
LEWIS-11469 B72-10379 03

CRACK PROPAGATION

Failure in glass
AEC-10088 B72-10364 04

CRACKING (FRACTURING)

Repeatable method of thermal stress fracture test of brittle materials
NUC-11019 B72-10258 06
Joining precipitation-hardened nickel-base alloys by friction welding
LEWIS-11514 B72-10288 08
Titanium alloy stress corrosion cracking in presence of dinitrogen tetroxide
M-FS-21113 B72-10321 04

CRACKS

A tool for cutting ultra thin slits in metals
KSC-10770 B72-10433 07
Triangular wheel locomotion mechanism
NPO-11366 B72-10714 06

CRAWLER TRACTORS

Tandem steerable running gear
M-FS-22012 B72-10499 07

CREEP STRENGTH

Tungsten-reinforced tantalum
LEWIS-11750 B72-10684 04

CREWS

Cell for electrolysis of water vapor
ARC-10521 B72-10166 03

CRITICAL PRESSURE

Properties of ionization breakdown of air at microwave frequencies and optimization of component dimensions for maximum microwave power
M-FS-21924 B72-10316 01

CRITICAL VELOCITY

Turbopump radial and axial rotor support system
M-FS-21495 B72-10264 07

CROSS FLOW

Investigations of a turbulent jet in a crossflow
LEWIS-11680 B72-10437 06

CROSSLINKING

Functionally terminated liquid nitroso fluorocarbon terpolymers
M-FS-21539 B72-10493 04
New type of trifunctional alcohol
NPO-10714 B72-10553 04

CRUDE OIL

A sonic transducer to detect fluid leaks
KSC-10704 B72-10376 01

CRYOGENIC EQUIPMENT

Thermal control for storage of cryogenic propellants in a multiple-tank system: A concept
ARC-10560 B72-10278 03
Design curve for liquid helium storage vessels
LEWIS-11498 B72-10286 02
Multipurpose top for liquid helium Dewar
ARC-10533 B72-10302 03
A closed loop cryogenic environment pressure regulating system
MSC-13880 B72-10390 02
Temperature control of a cryogenic bath
HQ-10788 B72-10532 03
High pressure liquid gas pump
MSC-14087 B72-10590 06

CRYOGENIC FLUID STORAGE

Thermal control for storage of cryogenic propellants in a multiple-tank system: A concept
ARC-10560 B72-10278 03
Design curve for liquid helium storage vessels
LEWIS-11498 B72-10286 02
Multipurpose top for liquid helium Dewar
ARC-10533 B72-10302 03
Overflow sensor for cryogenic-fluid vessels
NPO-10619 B72-10554 03
Internal capillary insulation for cryogenic tanks
LEWIS-11234 B72-10626 06

CRYOGENIC FLUIDS

Use of thin plastic films at cryogenic temperatures
LEWIS-11047 B72-10038 04
A cryopump for cooling objects at a distance
LRL-10031 B72-10314 03
Overflow sensor for cryogenic-fluid vessels
NPO-10619 B72-10554 03

- Internal capillary insulation for cryogenic tanks
LEWIS-11234 B72-10626 06
An optical quality meter suitable for cryogenic liquids
LEWIS-11814 B72-10686 06
- CRYOGENIC MAGNETS**
Wide-range nuclear magnetic resonance detector
LEWIS-11513 B72-10478 03
- CRYOGENIC ROCKET PROPELLANTS**
Rising-plate rheometer
ARC-10524 B72-10026 03
Cryogenic gel flow viscometer
ARC-10523 B72-10180 03
Thermal control for storage of cryogenic propellants in a common-bulkhead tank:
A concept
ARC-10558 B72-10276 03
- CRYOGENIC STORAGE**
Thermal control for storage of cryogenic propellants in a common-bulkhead tank:
A concept
ARC-10558 B72-10276 03
- CRYOGENICS**
A liquid radiation detector with high spatial resolution
MSC-13965 B72-10034 03
Use of thin plastic films at cryogenic temperatures
LEWIS-11047 B72-10038 04
A reliable liquid helium detector
LEWIS-11487 B72-10145 01
Low temperature scale for a 1 to 20 degree Kelvin region
AEC-10007 B72-10146 03
Method of determining thermal conductivity in multi-layer insulation systems
M-FS-20213 B72-10154 03
Superior cryogenic insulation developed
M-FS-21560 B72-10187 04
Turbopump radial and axial rotor support system
M-FS-21495 B72-10264 07
Adhesive for aluminum withstands cryogenic temperatures
M-FS-16848 B72-10346 04
Helium leak measurements using CO₂ as a carrier
M-FS-21742 B72-10354 03
Temperature control of a cryogenic bath
HQ-10788 B72-10532 03
- CRYOPUMPING**
A cryopump for cooling objects at a distance
LRL-10031 B72-10314 03
- CRYSTAL DEFECTS**
Improved magnesia for thermal control coatings
ARC-10677 B72-10424 04
- CRYSTAL GROWTH**
Improved synthesis of intermetal compounds
HQ-10690 B72-10172 04
Floating zone process for drawing small diameter fibers of refractory materials
LEWIS-11380 B72-10491 04
- CRYSTAL LATTICES**
Microminiature gas chromatographic column
ARC-10594 B72-10306 04
Improved magnesia for thermal control coatings
ARC-10677 B72-10424 04
- CRYSTAL OPTICS**
Acousto-optic filter for electronic laser tuning
HQ-10715 B72-10520 03
- CRYSTAL OSCILLATORS**
Crystal-controlled multivibrator
NPO-11627 B72-10155 01
- CRYSTAL STRUCTURE**
Manganese bismuth thin film for large capacity digital memories
M-FS-21246 B72-10107 03
Improved magnesia for thermal control coatings
ARC-10677 B72-10424 04
Proposed semiconductor film improvement
HQ-10685 B72-10438 04
- CRYSTALLINITY**
Angular velocity and acceleration meter
LEWIS-11466 B72-10183 06
Photoemissive coating
M-FS-22003 B72-10638 08
- CRYSTALLIZATION**
A stable liquid crystal for electro-optical displays
HQ-10714 B72-10746 04
- CRYSTALS**
High field CdS detector for infrared radiation
LANGLEY-11027 B72-10725 04
- CUBES (MATHEMATICS)**
Cubic spline functions for curve fitting
LRL-10034 B72-10311 09
- CULTURE TECHNIQUES**
Automatic agar tray inoculation device
LANGLEY-11074 B72-10637 05
- CURIE TEMPERATURE**
Manganese bismuth thin film for large capacity digital memories
M-FS-21246 B72-10107 03
- CURING**
High strength, medium density molded foam
AEC-10053 B72-10235 04
Devolatilization of polymer resins
GSFC-11358 B72-10280 04
A new vibration dampening adhesive
MSC-17668 B72-10284 04
New compression molding process of thermosetting plastic compounds
LANGLEY-10782 B72-10356 08
- CURIUM 244**
Radioisotope thermionic power supply for spacecraft
ARC-10438 B72-10212 03
- CURRENT AMPLIFIERS**
Oxygen pressure control for electrolysis cells
ARC-10250 B72-10074 02
Vibrating ribbon bolometer: A concept
XAC-10768 B72-10170 03
- CURRENT DENSITY**
High solar intensity radiometer
LEWIS-11533 B72-10130 03
Metastable atom probe for measuring electron beam density profiles
M-FS-21593 B72-10485 03
- CURRENT DISTRIBUTION**
Compensation of voltage drops in solid-state switches used with thermoelectric generators
NPO-11388 B72-10138 01
Cell for electrolysis of water vapor
ARC-10521 B72-10166 03
- CURRENT REGULATORS**
Pseudo-saturating power converter
NPO-11368 B72-10042 01
Circuit controls turn-on current
NPO-11339 B72-10079 01
- CURVE FITTING**
Cubic spline functions for curve fitting
LRL-10034 B72-10311 09
Computer program for fitting low-order polynomial splines by method of least squares
LEWIS-11651 B72-10585 09
- CUTTERS**
Tubing cutter
NPO-11524 B72-10095 07
Slitting flat conductor cables with the single cutting edge slitter
M-FS-20111 B72-10575 07
Portable beveling tool
M-FS-16863 B72-10678 07
- CUTTING**
Explosive cord
M-FS-21928 B72-10293 08
A tool for cutting ultra thin slits in metals
KSC-10770 B72-10433 07
Slitting flat conductor cables with the single cutting edge slitter
M-FS-20111 B72-10575 07
Portable beveling tool
M-FS-16863 B72-10678 07
- CYANIDES**
Improved zinc oxide thermal control coatings
NPO-11139 B72-10711 04
- CYLINDRICAL BODIES**
A permeable rotating-wheel solvent extractor
LRL-10033 B72-10343 04
New compression molding process of thermosetting plastic compounds
LANGLEY-10782 B72-10356 08
Portable beveling tool
M-FS-16863 B72-10678 07
Cylindrically shaped rope ladder
M-FS-16319 B72-10688 07
- CYLINDRICAL CHAMBERS**
Gyro spring augmentation system
ARC-10496 B72-10010 06
Water cavity degasser for electrolysis cells
ARC-10244 B72-10246 03
Linear accelerator: A concept
KSC-10618 B72-10636 06
Implantable drug therapy device: A concept
NPO-11934 B72-10708 05
- CYLINDRICAL TANKS**
Simple method for forming thin-wall pressure vessels
ARC-10511 B72-10025 08
Automatic water inventory, collecting, and dispensing unit
LANGLEY-11071 B72-10663 06

D

DAMAGE

- Baffle to confine glow discharge in ion pump
M-FS-21575 B72-10324 03

DAMPING

- Inertial reference unit
NPO-11518 B72-10094 02

Wide-range dynamic pressure sensor
 ARC-10263 872-10196 03
 Energy absorber uses expanded coiled tube
 AEC-10044 872-10239 06
 Control of oscillations in a discharge circuit
 ARC-10556 872-10304 01
 Improvements of Zeyded method for calculating flutter of flat panels
 M-FS-20955 872-10399 06
 Multiple reaction mass and isolation system
 M-FS-24119 872-10441 06

DATA ACQUISITION

Circuit permits independent adjustment of gain and offset at constant input impedance
 ARC-10348 872-10057 01
 Prediction of ducted fan performance
 ARC-10615 872-10064 09
 Cavitation data for hydraulic equipment
 LEWIS-11642 872-10384 07
 Compression and R-wave detection of ECG/VCG data
 MSC-14126 872-10391 05
 A continuous physiological data collector
 M-FS-20835 872-10402 05
 High temperature permeameter for measuring magnetic properties
 LEWIS-11609 872-10443 03
 FORTRAN manpower account program
 NPO-11973 872-10623 09
 A system for automatic analysis of blood pressure data for digital computer entry
 LEWIS-11751 872-10632 05
 Self-calibrating remote atmospheric electromagnetic probe and data acquisition system
 M-FS-21212 872-10665 03
 Automatic method of measuring silicon-controlled-rectifier holding current
 LEWIS-11898 872-10752 02

DATA CONVERTERS

High speed sequential decoder
 ARC-10657 872-10568 09

DATA CORRELATION

Compression and R-wave detection of ECG/VCG data
 MSC-14126 872-10391 05

DATA MANAGEMENT

Software control for large scale on-board checkout: A concept
 MSC-13977 872-10015 09
 Redundant data management system
 M-FS-21831 872-10589 09
 Design criteria monograph for pressurized metal cases
 LEWIS-11835 872-10633 04

DATA PROCESSING

Wind trajectory tracing for air pollution studies (AIRPOL)
 NPO-11892 872-10072 09
 Standardization and qualification of computer programs for circuit design
 M-FS-21537 872-10142 09
 Crystal-controlled multivibrator
 NPO-11627 872-10155 01
 Graphite and boron-reinforced composite materials data summary
 M-FS-21691 872-10294 04
 Redundant data management system
 M-FS-21831 872-10589 09

Significance arithmetic experimental package (SIGPAC)
 GSFC-11499 872-10600 09
 Program for standard statistical distributions
 M-FS-21466 872-10602 09
 Automatic computer subprogram selection from application-program libraries - ALTLIB
 LANGLEY-11124 872-10607 09
 Vortex-lattice FORTRAN program for estimating subsonic aerodynamic characteristics of complex planforms
 LANGLEY-11047 872-10618 09
 Method for nonlinear exponential regression analysis
 M-FS-21965 872-10622 09
 FORTRAN manpower account program
 NPO-11973 872-10623 09
 Computer program to generate attitude error equations for a gimbal platform
 M-FS-21991 872-10624 09
 A system for automatic analysis of blood pressure data for digital computer entry
 LEWIS-11751 872-10632 05
 An improved data transfer and storage technique for hybrid computation
 M-FS-22043 872-10680 02
 Chrysler improved numerical differencing analyzer for third generation computers
 CINDA-3G 872-10721 09
 MSC-11653 872-10721 09

DATA PROCESSING EQUIPMENT

Improved feedback shift register
 NPO-10351 872-10226 01
 Dual redundant core memory systems
 MSC-13993 872-10261 09
 Memory reduction through higher level language hardware
 M-FS-21128 872-10350 09
 Interferometer using RF switching matrix
 GSFC-11051 872-10462 01
 High speed sequential decoder
 ARC-10657 872-10568 09
 Source deck compression and update program (CAPS)
 GSFC-11545 872-10619 09

DATA RECORDERS

Technique minimizes the effects of dropouts on telemetry records
 NPO-11421 872-10088 02

DATA RECORDING

Very high speed direct-readout, control and recording system
 M-FS-20658 872-10442 02
 High temperature permeameter for measuring magnetic properties
 LEWIS-11609 872-10443 03
 Source deck compression and update program (CAPS)
 GSFC-11545 872-10619 09

DATA REDUCTION

Source deck compression and update program (CAPS)
 GSFC-11545 872-10619 09
 A multielement probe for coincident temperature and pressure measurements
 LEWIS-11775 872-10716 06

DATA RETRIEVAL

Source deck compression and update program (CAPS)
 GSFC-11545 872-10619 09

DATA SAMPLING

Errors in hybrid computers.
 M-FS-21289 872-10141 02

DATA SMOOTHING

Cubic spline functions for curve fitting
 LRL-10034 872-10311 09

DATA STORAGE

Dual redundant core memory systems
 MSC-13993 872-10261 09
 Video information system
 M-FS-21711 872-10267 09
 Vidicon storage tube electrical input/output
 MSC-14053 872-10285 02
 A continuous physiological data collector
 M-FS-20835 872-10402 05
 A simplified, compact static shift register
 HQ-10723 872-10591 02
 Source deck compression and update program (CAPS)
 GSFC-11545 872-10619 09
 A visual-display and storage device
 GSFC-10901 872-10647 02
 An improved data transfer and storage technique for hybrid computation
 M-FS-22043 872-10680 02

DATA SYSTEMS

Remote sensing X-ray spectrometer
 MSC-13978 872-10016 03
 Circuit permits independent adjustment of gain and offset at constant input impedance
 ARC-10348 872-10057 01
 Prediction of ducted fan performance
 ARC-10615 872-10064 09
 Wind trajectory tracing for air pollution studies (AIRPOL)
 NPO-11892 872-10072 09
 Dual redundant core memory systems
 MSC-13993 872-10261 09
 Very high speed direct-readout, control and recording system
 M-FS-20658 872-10442 02
 High speed sequential decoder
 ARC-10657 872-10568 09
 Source deck compression and update program (CAPS)
 GSFC-11545 872-10619 09
 Method for nonlinear exponential regression analysis
 M-FS-21965 872-10622 09

DATA TRANSMISSION

Very high speed direct-readout, control and recording system
 M-FS-20658 872-10442 02
 An improved learning decoder
 MSC-14070 872-10573 02
 Redundant data management system
 M-FS-21831 872-10589 09
 Source deck compression and update program (CAPS)
 GSFC-11545 872-10619 09
 Self-calibrating remote atmospheric electromagnetic probe and data acquisition system
 M-FS-21212 872-10665 03
 Mathematical analysis for the performance assessment of space communication parameters, IBM-360 version
 GSFC-11523 872-10675 09
 An improved data transfer and storage technique for hybrid computation
 M-FS-22043 872-10680 02

DEAD RECKONING

A simple dead-reckoning navigational system
 M-FS-21165 872-10409 02

DECELERATION

Probe measures gas and liquid mass flux in high mass flow ratio two-phase flows

LEWIS-11270 B72-10546 06
Seat belt restraint system

ARC-10519 B72-10692 06

DECISION MAKING

Integrated multi-path program analysis and cost technique (IMPACT)

M-FS-21880 B72-10676 09

DECODERS

High speed sequential decoder

ARC-10657 B72-10568 09

An improved learning decoder

MSC-14070 B72-10573 02

DECOMPOSITION

Catalyst for sodium chlorate decomposition

ARC-10584 B72-10305 04

Chemical kinetics computer program for static and flow reactions

LEWIS-11467 B72-10580 04

DECOMPRESSION SICKNESS

An efficient prebreathing apparatus for humans during decompression

MSC-14151 B72-10690 05

DECONTAMINATION

Purification of contaminated water by filtration through porous glass

ARC-10655 B72-10412 04

DEEP SPACE NETWORK

Deep space network

NPO-11562 B72-10043 01

Accurate measurement of telemetry performance

NPO-11457 B72-10089 02

DEFECTS

Nondestructive-test standards for evaluation of fiber-reinforced composites

M-FS-21288 B72-10157 04

Repeatable method of thermal stress fracture test of brittle materials

NUC-11019 B72-10258 06

Simple non-destructive tests for electroexplosive devices

NPO-11563 B72-10315 01

Improved optical filters for automated visual inspection

HQ-10720 B72-10521 03

DEFLECTION

Device for measuring electric fields

ARC-10164 B72-10148 03

Redirecting electromagnetic beams through wide angles

ARC-10602 B72-10307 03

Noncontact torque measurement using stroboscopic techniques

MSC-12282 B72-10332 07

Laser beam deflection control: A concept

MSC-13814 B72-10411 02

Analytical failure determination of flow-induced fatigue in bellows

M-FS-18178 B72-10488 06

DEFORMATION

Velocity accelerometer for particles

NPO-11349 B72-10082 03

Joining precipitation-hardened nickel-base alloys by friction welding

LEWIS-11514 B72-10288 08

Composite mobile system for holographic nondestructive testing

M-FS-21704 B72-10351 03

Computer program for calculating the temperature field of face seals

LEWIS-11110 B72-10483 09

DEFORMETERS

Bileaf mechanical strain gage

ARC-10303 B72-10197 07

DEGASSING

Water cavity degasser for electrolysis cells

ARC-10244 B72-10246 03

Free-radical solution-polymerization of trifluoronitrosomethane with tetrafluoroethylene

ARC-10567 B72-10419 04

DEGRADATION

Improved elastomer for use with oxygen difluoride

ARC-10528 B72-10027 04

Sheet plastic filters for solar cells

NPO-11464 B72-10090 04

Trace contaminant adsorption and sorbent regeneration in closed ecological systems

LANGLEY-10681 B72-10328 04

Study of in-situ degradation of thermal control surfaces

M-FS-20892 B72-10336 04

Alternating current losses in superconducting coils

M-FS-21129 B72-10360 03

Ultraviolet and thermally stable polymer compositions

ARC-10592 B72-10709 04

DEGREES OF FREEDOM

Reduction of fan noise: A concept

ARC-10312 B72-10040 06

Universal inverted flexure

ARC-10345 B72-10122 07

Space suit may have orthotic applications

ARC-10275 B72-10297 05

A proposed remote manipulator system: A concept

MSC-14245 B72-10733 06

DEHUMIDIFICATION

Aircrew oxygen system

ARC-10247 B72-10195 05

Solid amine compounds as sorbents for carbon dioxide: A concept

ARC-10571 B72-10421 04

DEHYDRATED FOOD

Quick, easy to prepare freeze-dried soups

MSC-14003 B72-10017 05

DEHYDRATION

Quick, easy to prepare freeze-dried soups

MSC-14003 B72-10017 05

DELAY CIRCUITS

Third order digital-to-analog converter

MSC-12458 B72-10030 02

DEMAGNETIZATION

Manganese bismuth thin film for large capacity digital memories

M-FS-21246 B72-10107 03

DEMODULATION

Accurate measurement of telemetry performance

NPO-11457 B72-10089 02

Differential input preamplifier

ARC-10489 B72-10165 01

DENSIFICATION

Fabrication of large ceramic electrolyte disks

ARC-10320 B72-10202 03

DENSITOMETERS

Ultrasonic bone densitometer

M-FS-20994 B72-10450 05

Fast response densitometer for measuring liquid density

M-FS-14478 B72-10664 02

DENSITY

Nondispersive infrared analyzer for specific gases in complex mixtures

ARC-10308 B72-10198 03

Fabrication of large ceramic electrolyte disks

ARC-10320 B72-10202 03

DENSITY (MASS/VOLUME)

An economical vent cover

M-FS-20692 B72-10348 07

Ultrasonic bone densitometer

M-FS-20994 B72-10450 05

Fast response densitometer for measuring liquid density

M-FS-14478 B72-10664 02

Boron-10 loaded inorganic shielding material

M-FS-22280 B72-10740 04

DENSITY MEASUREMENT

Fast response densitometer for measuring liquid density

M-FS-14478 B72-10664 02

DEPOSITION

Isotropic pyrolytic carbons

ARC-10532 B72-10029 04

DESALINIZATION

Stabilization of porous glass reverse-osmosis membranes

ARC-10646 B72-10309 04

DESORPTION

Adhesion theory review

AEC-10083 B72-10231 04

DETECTION

Remote sensing X-ray spectrometer

MSC-13978 B72-10016 03

Sensitive holographic detection of small aerodynamic perturbations

ARC-10422 B72-10209 03

Laboratory leak tester provides high sensitivity

AEC-10042 B72-10240 03

Lightning flash detection system

ARC-10562 B72-10272 02

DETECTORS

Software control for large scale on-board checkout: A concept

MSC-13977 B72-10015 09

Lightweight, broad-band spectrum analyzer

ARC-10405 B72-10060 01

A reliable liquid helium detector

LEWIS-11487 B72-10145 01

Two-axis leveling detector system

M-FS-21344 B72-10392 02

Wide-range nuclear magnetic resonance detector

LEWIS-11513 B72-10478 03

A magnetic mouse activity meter

HQ-10664 B72-10482 05

Electronic circuit detects left ventricular ejection events in cardiovascular system

LEWIS-11581 B72-10512 05

An approach to real-time process control of semiconductor wire-bonding

M-FS-21558 B72-10644 08

Fast response densitometer for measuring liquid density

M-FS-14478 B72-10664 02

DETONATION

Explosive cord

M-FS-21928 B72-10293 08

DETONATION WAVES

Velocity accelerator for particles

NPO-11349 B72-10082 03

DEUTERIUM

Direct analysis of hydrogen/deuterium mixtures: A concept

NPO-11322 B72-10244 03

Separation of gas mixtures by centrifugation

ARC-10449 B72-10270 03

Improved transmittance measurement with a magnesium oxide coated integrating sphere

LEWIS-11840 B72-10717 04

DIAGNOSIS

An efficient, simple dialyzer

HQ-10741 B72-10522 05

DIAGRAMS

Analog table look-up device identifies unknown terrain

MSC-13816 B72-10033 03

DIALS

An improved aesthesiometer

MSC-13609 B72-10032 05

Overlay board for control consoles

ARC-10007 B72-10191 02

Bileaf mechanical strain gage

ARC-10303 B72-10197 07

DIALYSIS

Small, low cost, artificial kidney

AEC-10011 B72-10371 05

An efficient, simple dialyzer

HQ-10741 B72-10522 05

DIAMINES

Development of a polyimide for use as a temperature and solvent resistant sealant

M-FS-21325 B72-10262 04

DIAMONDS

Cutting thin sections of bone

ARC-10555 B72-10303 05

Sintered diamond compacts using metallic cobalt binders

HQ-10706 B72-10519 04

Polishing is made cheaper by disposable diamond-impregnated abrasive cloth

MSC-14247 B72-10616 08

DIAPHRAGMS

Wide-range dynamic pressure sensor

ARC-10263 B72-10196 03

Automatic water inventory, collecting, and dispensing unit

LANGLEY-11071 B72-10663 06

DIAPHRAGMS (MECHANICS)

Electrodynamic actuators for rocket engine valves

ARC-10486 B72-10009 06

Hermetic isolation valves

ARC-10505 B72-10013 06

Improved elastomer for use with oxygen difluoride

ARC-10528 B72-10027 04

Use of thin plastic films at cryogenic temperatures

LEWIS-11047 B72-10038 04

Nematic liquid crystals for optical shutters: A concept

NPO-11367 B72-10083 03

Counter lung

ARC-10248 B72-10219 05

Improved high-performance shock tube

NPO-11885 B72-10242 03

Rapid evaluation of reverse-osmosis membranes

ARC-10659 B72-10413 04

Constant tension device for gravity simulation

M-FS-21618 B72-10466 06

Parallel-plate viscometer

NPO-11387 B72-10700 03

DIATOMIC GASES

Nondispersive infrared analyzer for specific gases in complex mixtures

ARC-10308 B72-10198 03

Diatomic infrared gasdynamic laser permits selection of wavelengths

ARC-10370 B72-10206 03

DIBORANE

Oxygen carrier for gas chromatographic analysis of inert gases in propellants

ARC-10574 B72-10249 04

Thermal control for storage of cryogenic propellants in a common-bulkhead tank:

A concept

ARC-10558 B72-10276 03

DICHROISM

Optical device for producing color line scan display from monochrome oscilloscope traces

LANGLEY-10896 B72-10375 03

DIELECTRIC PROPERTIES

Protective encapsulation of implantable biotelemetry units

ARC-10514 B72-10301 05

Frequency-wavelength calculator with table of dielectric properties

GSFC-11200 B72-10472 03

DIELECTRICS

Gate protective device for insulated gate field-effect transistors

M-FS-21626 B72-10149 01

Improved high voltage insulator for use in vacuum

LEWIS-11401 B72-10181 01

Liquid-helium-cooled Michelson interferometer

ARC-10554 B72-10217 03

An electrohydrodynamic heat pipe

ARC-10601 B72-10251 03

High voltage electrical insulation coating for refractory materials

LEWIS-11479 B72-10290 04

Transmission of optical frequencies with minimal losses

HQ-10541 B72-10389 03

Frequency-wavelength calculator with table of dielectric properties

GSFC-11200 B72-10472 03

Novel dielectric reduces corona breakdown in ac capacitors

M-FS-21486 B72-10505 01

DIFFERENTIAL AMPLIFIERS

A differential ECG amplifier with single-ended output

ARC-10411 B72-10061 05

Stable photosensor amplifiers

NPO-11561 B72-10100 01

Differential input preamplifier

ARC-10489 B72-10165 01

DIFFERENTIAL EQUATIONS

Algorithm for Liapunov stability analysis

ARC-10498 B72-10023 09

Program to determine radiating, nonadiabatic, inviscid flow over a blunt body by the method of integral relations

LANGLEY-11048 B72-10067 09

Carbon monoxide oxidation rates computed for automobile thermal reactor conditions

LEWIS-11638 B72-10137 04

Evaluating foam heterogeneity

AEC-10046 B72-10365 04

Analysis and computer programs to calculate acoustic wave properties of baffled chambers

LEWIS-11529 B72-10577 09

Chemical kinetics computer program for static and flow reactions

LEWIS-11467 B72-10580 04

DIFFERENTIAL PRESSURE

Method of determining thermal conductivity in multi-layer insulation systems

M-FS-20213 B72-10154 03

Vortex servovalve for fluidic or electrical input

ARC-10155 B72-10173 07

Two-stage coaxial gas compressor

ARC-10426 B72-10210 06

Miniature high pressure regulator

ARC-10428 B72-10211 07

Self-aligning, low-pressure sealing poppet valve

MSC-17745 B72-10538 07

DIFFRACTION PATTERNS

Interferometric rotation sensor

ARC-10278 B72-10274 03

Composite mobile system for holographic nondestructive testing

M-FS-21704 B72-10351 03

DIFFUSION

Oxygen-layer structure improves lithium-doped silicon solar cells

NPO-11403 B72-10085 03

Introduction of lithium into the front surface of solar cells

NPO-11404 B72-10086 02

Hybrid holographic system

M-FS-20074 B72-10260 03

New twisted intermetallic compound superconductor: A concept

LEWIS-11015 B72-10282 04

A thermocouple thermode for small animals

ARC-10550 B72-10559 05

DIFFUSION PUMPS

Efficient baffle prevents oil backstreaming in diffusion pumps

LRL-10025 B72-10475 07

Improved method for reclaiming vacuum diffusion pump oil

LEWIS-11647 B72-10511 04

DIFFUSIVITY

Evaluating foam heterogeneity

AEC-10046 B72-10365 04

DIGESTIVE SYSTEM

Sensor capsule for diagnosis of gastric disorders

HQ-10767 B72-10531 05

DIGITAL COMPUTERS

Cubic spline functions for curve fitting

LRL-10034 B72-10311 09

A system for automatic analysis of blood pressure data for digital computer entry

LEWIS-11751 B72-10632 05

DIGITAL DATA

Technique minimizes the effects of dropouts on telemetry records

NPO-11421 B72-10088 02

Vidicon storage tube electrical input/output

MSC-14053 B72-10285 02

An improved data transfer and storage technique for hybrid computation

M-FS-22043 B72-10680 02

DIGITAL FILTERS

Selecting digital filters

M-FS-20933 B72-10156 01

DIGITAL INTEGRATORS

Speed enhancement of complementary MOS devices

ARC-10387 B72-10184 01

DIGITAL SIMULATION

Program for determination of radiation
interchange factors
MSC-17563 872-10071 09

DIGITAL TO ANALOG CONVERTERS

Third order digital-to-analog converter
MSC-12458 872-10030 02
A range expanding signal conditioner
M-FS-21720 872-10639 02
Speech therapy and voice recognition
instrument
HQ-10628 872-10652 05
An improved data transfer and storage
technique for hybrid computation
M-FS-22043 872-10680 02

DIMPLING

Experimental study of surface cracks
MSC-14032 872-10019 04
Insulating effectiveness of self-spacing
dimpled foil
LEWIS-10941 872-10406 04

DIODES

Solar experiment alignment system
ARC-10471 872-10020 03
Circuit controls turn-on current
NPO-11339 872-10079 01
Control of acceleration in sine/random
vibration tests
NPO-11482 872-10091 02
Gate protective device for insulated gate
field-effect transistors
M-FS-21626 872-10149 01
Temperature compensation of light-
emitting diodes
ARC-10467 872-10218 01
Simple dynamic electromagnetic radia-
tion detector
LEWIS-11159 872-10227 03
Electronic switching circuit uses com-
plementary non-linear components
AEC-10060 872-10236 01
Diode-quad bridge for reactive transduc-
ers and FM discriminators
ARC-10364 872-10691 01

DIRECT CURRENT

Pseudo-saturating power converter
NPO-11368 872-10042 01
Electrical grounding bracket
ARC-10041 872-10045 01
Improved device measures performance
of batteries under load
ARC-10252 872-10051 02
Lightweight, broad-band spectrum
analyzer
ARC-10405 872-10060 01
Oxygen pressure control for electrolysis
cells
ARC-10250 872-10074 02
Circuit controls turn-on current
NPO-11339 872-10079 01
Illumination control system
ARC-10527 872-10167 02
Two-stage coaxial gas compressor
ARC-10426 872-10210 06
A brushless dc spin motor for momen-
tum exchange altitude control
M-FS-14952 872-10448 02
Universal dc signal conditioner
MSC-17526 872-10510 02
High-intensity source of extreme
ultraviolet
HQ-10754 872-10528 03
Dc motor proportional control system
for orthotic devices
M-FS-21573 872-10617 05

DIRECT LIFT CONTROLS

Ejector nozzle with massive blowing
ARC-10621 872-10693 06

DIRECTIONAL ANTENNAS

Compensating subreflector for two-
reflector antennas: A concept
NPO-11503 872-10093 06

DISCONNECT DEVICES

Squib-actuated disconnect device
NPO-11544 872-10097 06
Fill and vent quick disconnect
M-FS-21822 872-10645 07
Squib-operated disconnect
NPO-11330 872-10713 06

DISCONTINUITY

Adhesion theory review
AEC-10083 872-10231 04

DISCRIMINATORS

Remote sensing X-ray spectrometer
MSC-13978 872-10016 03
A reliable liquid helium detector
LEWIS-11487 872-10145 01
Diode-quad bridge for reactive transduc-
ers and FM discriminators
ARC-10364 872-10691 01

DISKS

Fabrication of large ceramic electrolyte
disks
ARC-10320 872-10202 03

DISKS (SHAPES)

Optical bonding agents for severe
environments
ARC-10459 872-10063 04
An absorption spectrum amplifier for
determining gas composition
HQ-10752 872-10524 03

DISPERSING

Dispersion ring reduces injector orifice-
to-orifice flow variation
MSC-15953 872-10117 07

DISPERSIONS

Hydraulic modeling of heat dispersion
in large lakes
AEC-10003 872-10039 03

DISPLACEMENT

Design of two-dimensional sharp-edged-
throat supersonic nozzle with boundary-
layer correction
LEWIS-11636 872-10070 09
Program for calculating laminar and
turbulent boundary layers in arbitrary
pressure gradients
LEWIS-11097 872-10111 09
Bileaf mechanical strain gage
ARC-10303 872-10197 07
Ferrofluidic solenoid with axial and
radial displacement
NPO-11738 872-10241 06
Adjustable locking device
M-FS-21650 872-10459 07
Diode-quad bridge for reactive transduc-
ers and FM discriminators
ARC-10364 872-10691 01
Accurate measurement of gas volumes
by liquid displacement
ARC-10723 872-10699 03

DISPLAY DEVICES

Optical alignment of electrodes on
electrical discharge machines
XAC-09489 872-10036 07
Improved system for measuring speed
of rotating machinery
ARC-10413 872-10179 07
Video information system
M-FS-21711 872-10267 09

Blood pressure measurement and dis-
play system
MSC-13036 872-10334 05

A sonic transducer to detect fluid
leaks
KSC-10704 872-10376 01

Roll function in a flight simulator
ARC-10557 872-10417 02

Airlock caution and warning system
M-FS-21576 872-10467 02

Neutron radiographic viewing system
M-FS-22024 872-10468 02

A compact battery powered digital
thermometer
MSC-14084 872-10545 02

An absentee monitoring device
KSC-10668 872-10578 01

A system for automatic analysis of
blood pressure data for digital computer
entry
LEWIS-11751 872-10632 05

A visual-display and storage device
GSFC-10901 872-10647 02

Optimal read/write memory system
components
M-FS-22044 872-10697 01

A stable liquid crystal for electro-optical
displays
HQ-10714 872-10746 04

DISPOSAL
Polishing is made cheaper by disposable
diamond-impregnated abrasive cloth
MSC-14247 872-10616 08

DISSOLVING
Titanium alloy stress corrosion cracking
in presence of dinitrogen tetroxide
M-FS-21113 872-10321 04

DISTILLATION
Improved method for reclaiming vacuum
diffusion pump oil
LEWIS-11647 872-10511 04

DISTORTION
Analysis of thermal stress and metal
movement during welding
M-FS-20984 872-10333 04

DOCUMENT STORAGE
Video information system
M-FS-21711 872-10267 09

DOCUMENTATION
Standard environmental testing
practices
NPO-11567 872-10101 02

DOCUMENTS
Guidelines for fabrication of hybrid
microcircuits
M-FS-21964 872-10393 01

Design criteria monograph for high-load
high-speed rolling-contact bearings
LEWIS-11823 872-10627 04

DOPPLER EFFECT
Evaluation of jet engine noise
M-FS-21416 872-10263 03

Optical enhancement of sensitivity in
laser Doppler velocity systems
ARC-10653 872-10310 03

Interferometric measurement of the
velocity of radiating particles
HQ-10371 872-10495 03

DOPPLER RADAR
New pulsing technique may improve
radar ranging systems
ARC-10600 872-10564 02

DOSAGE
Simple dynamic electromagnetic radia-
tion detector
LEWIS-11159 872-10227 03

DRAINAGE

Preventing oil migration in vacuum systems
GSFC-11253 872-10129 04

DRIFT (INSTRUMENTATION)

Long-term drift of thermocouples at 1600 K
LEWIS-11471 872-10176 01
High temperature gallium phosphide rectifiers
LEWIS-11804 872-10673 01

DRILL BITS

Planetary rock corer and drill concepts
NPO-11416 872-10398 07
Chuck for delicate drills
ARC-10660 872-10414 07

DRILLING

Survey of information concerning large diameter deep hole drilling
AEC-10051 872-10238 08
Noncontaminating technique for making holes in existing process systems
LEWIS-11595 872-10385 07
Planetary rock corer and drill concepts
NPO-11416 872-10398 07
Chuck for delicate drills
ARC-10660 872-10414 07

DRILLS

Planetary rock corer and drill concepts
NPO-11416 872-10398 07

DROPOUTS

Technique minimizes the effects of dropouts on telemetry records
NPO-11421 872-10088 02

DROPS (LIQUIDS)

Promotion of dropwise condensation of ethyl alcohol, methyl alcohol, and acetone by polytetrafluoroethylene
LANGLEY-10940 872-10115 04
Boiler for generating high quality vapor
LEWIS-11345 872-10135 06
Probe measures gas and liquid mass flux in high mass flow ratio two-phase flows
LEWIS-11270 872-10546 06

DRUMS (CONTAINERS)

Boiler for generating high quality vapor
LEWIS-11345 872-10135 06
Oxygen reclamation with solid oxide electrolytes
ARC-10487 872-10273 03

DRY CELLS

Electrodes for sealed secondary batteries
ARC-10238 872-10050 02

DUCTED FANS

Prediction of ducted fan performance
ARC-10615 872-10064 09

DUCTILITY

Dispersion-strengthened chromium alloy
LEWIS-10982 872-10378 04
Tungsten-reinforced tantalum
LEWIS-11750 872-10684 04

DUPLEX OPERATION

Dual redundant core memory systems
MSC-13993 872-10261 09

DURABILITY

Water purification by reverse osmosis using heterocyclic polymer membranes
LANGLEY-10514 872-10230 04

DUST

Sheet plastic filters for solar cells
NPO-11464 872-10090 04

DYES

An absorption spectrum amplifier for determining gas composition
HQ-10752 872-10524 03

DYNAMIC CHARACTERISTICS

Time-adjusted variable resistor
NPO-11306 872-10116 01
Comparative performance of double-focus and quadrupole mass spectrometers
NPO-11689 872-10702 03

DYNAMIC STABILITY

Computer method for identification of boiler transfer functions
LEWIS-11808 872-10582 09

DYNAMIC STRUCTURAL ANALYSIS

Thermally stable structural framework
ARC-10612 872-10252 08
Improvements of Zeyded method for calculating flutter of flat panels
M-FS-20955 872-10399 06
Equations to assess the impact resistance of fiber composites
LEWIS-11486 872-10503 04
Geometrically nonlinear static and dynamic analysis of arbitrarily loaded shells of revolution
LANGLEY-11109 872-10504 09
Spectral analysis of multiple time series
M-FS-18859 872-10614 09

DYNAMIC TESTS
Improved elastomer for use with oxygen difluoride
ARC-10528 872-10027 04

DYNAMOMETERS
Cine recording ophthalmoscope
ARC-10399 872-10189 05

E**EAR**

Ear oximeter-transducer monitors four physiological responses
XAC-05422 872-10224 05

EARTH ATMOSPHERE

Liquid-helium-cooled Michelson interferometer
ARC-10554 872-10217 03

EARTH SURFACE

Ultraviolet and thermally stable polymer compositions
ARC-10592 872-10709 04

ECOLOGY

Hand-held photomicroscopy system
ARC-10468 872-10190 03
Mercury in the environment
AEC-10048 872-10233 05

EDDY CURRENTS

Current switch has built-in time delay:
A concept
MSC-17324 872-10453 01

EFFECTIVENESS

Turbulent mixing film cooling correlation
LEWIS-11417 872-10326 07

EFFICIENCY

High efficiency collector for microwave tubes
LEWIS-11192 872-10259 03

EFFLUENTS

Mass separator for low velocity ions
ARC-10375 872-10123 03

Transonic divider for gas chromatograph effluents
NPO-11479 872-10706 03

EIGENVALUES

Compensator design for low-sensitivity linear time-invariant systems (COMPDES)
M-FS-21652 872-10486 09
Effects of nonuniform swash-plate stiffness on coupled blade-control system dynamics and stability
LANGLEY-11068 872-10749 06

ELASTIC BENDING

Miniature intermittent contact switch
ARC-10450 872-10452 01

ELASTIC PROPERTIES

Geometrically nonlinear static and dynamic analysis of arbitrarily loaded shells of revolution
LANGLEY-11109 872-10504 09
Improved electrodes for skin contacts
M-FS-21926 872-10698 05

ELASTIC WAVES

Acoustic emission used as weld quality monitor
AEC-10018 872-10427 08

ELASTOHYDRODYNAMICS

Lubricant selection for gear designers
LEWIS-11483 872-10136 04

ELASTOMERS

Flame resistant elastic elastomeric fibers
MSC-13923-4 872-10005 04
Zero-leakage valves
ARC-10506 872-10024 06
Improved elastomer for use with oxygen difluoride
ARC-10528 872-10027 04
Increasing the response of PIN photodiodes to the ultraviolet
ARC-10274 872-10053 03
Ferrofluidic solenoid with axial and radial displacement
NPO-11738 872-10241 06
Pressure-probe assembly for wind tunnels
ARC-10569 872-10248 03

Free-radical solution-polymerization of trifluoronitrosomethane with tetrafluoroethylene
ARC-10567 872-10419 04

ELECTRIC ARCS

A hybrid electromechanical solid state switch for ac power control
MSC-14005 872-10018 02
Pulsed high-power arc heater with improved cathode and triggering mechanism
ARC-10173 872-10048 03
Arc protection system for high-power RF amplifiers
NPO-11560 872-10099 02
High voltage protection network
ARC-10197 872-10119 02
Improved high-performance shock tube
NPO-11885 872-10242 03
New meter probes provide protection from high current power sources at potentials up to 600 volts
LANGLEY-10804 872-10455 01

ELECTRIC BATTERIES

Coaxial inverted geometry epitaxial transistor
ARC-10330 872-10056 01
Hand-held photomicroscopy system
ARC-10468 872-10190 03
An ingestible temperature-transmitter
ARC-10583 872-10275 01

SUBJECT INDEX

Method to determine vented electrochemical cell quality
GSFC-11216 B72-10396 04

Fabrication techniques for organic electrolyte battery
AEC-10019 B72-10428 08

Al/C12 molten salt battery
HQ-10696 B72-10527 01

Improved silver-zinc battery-terminal seals
LEWIS-11615 B72-10581 06

ELECTRIC BRIDGES
Pulse excitation of bolometer bridges
ARC-10292 B72-10054 01

Simple non-destructive tests for electroexplosive devices
NPO-11563 B72-10315 01

Diode-quad bridge for reactive transducers and FM discriminators
ARC-10364 B72-10691 01

ELECTRIC CHARGE
A simple tachometer circuit
ARC-10603 B72-10308 01

Method to determine vented electrochemical cell quality
GSFC-11216 B72-10396 04

ELECTRIC CHOPPERS
Differential input preamplifier
ARC-10489 B72-10165 01

ELECTRIC COILS
Electrodynamical actuators for rocket engine valves
ARC-10486 B72-10009 06

Solenoid-operated swing-check valve
XAC-10048 B72-10037 06

Improved audio reproduction system
ARC-10404 B72-10059 01

Ferrofluidic solenoid with axial and radial displacement
NPO-11738 B72-10241 06

ELECTRIC CONDUCTORS
Beryllium thin films for resistor applications
ARC-10485 B72-10021 01

A piezoelectrically actuated ball valve
ARC-10338 B72-10204 06

An electrohydrodynamic heat pipe
ARC-10601 B72-10251 03

Miniature intermittent contact switch
ARC-10450 B72-10452 01

ELECTRIC CONNECTORS
Electrical grounding bracket
ARC-10041 B72-10045 01

Gate protective device for insulated gate field-effect transistors
M-FS-21626 B72-10149 01

Zipper-type electrical connectors
NPO-11639 B72-10159 01

Control of oscillations in a discharge circuit
ARC-10556 B72-10304 01

Improved universal electrical connector
M-FS-14741 B72-10363 01

Watertight low-cost electrical connector
LEWIS-11552 B72-10506 01

Universal dc signal conditioner
MSC-17526 B72-10510 02

ELECTRIC CONTACTS
Miniature intermittent contact switch
ARC-10450 B72-10271 01

A sonic transducer to detect fluid leaks
KSC-10704 B72-10376 01

High intensity solar cell radiometer
LEWIS-11549 B72-10480 01

Humidity resistant solar cell contacts
HQ-10674 B72-10517 04

ELECTRIC CONTROL
Solenoid-operated swing-check valve
XAC-10048 B72-10037 06

Vortex servovalve for fluidic or electrical input
ARC-10155 B72-10173 07

Miniature intermittent contact switch
ARC-10450 B72-10452 01

ELECTRIC CORONA
Novel dielectric reduces corona breakdown in ac capacitors
M-FS-21486 B72-10505 01

ELECTRIC CURRENT
Increasing the response of PIN photodiodes to the ultraviolet
ARC-10274 B72-10053 03

Graph for locked rotor current
MSC-15703 B72-10075 06

Nematic liquid crystals for optical shutters: A concept
NPO-11367 B72-10083 03

Vortex servovalve for fluidic or electrical input
ARC-10155 B72-10173 07

Ferrofluidic solenoid with axial and radial displacement
NPO-11738 B72-10241 06

Separation of gas mixtures by centrifugation
ARC-10449 B72-10270 03

A brushless dc spin motor for momentum exchange altitude control
M-FS-14952 B72-10448 02

Current switch has built-in time delay: A concept
MSC-17324 B72-10453 01

High-intensity source of extreme ultraviolet
HQ-10754 B72-10528 03

Electronic integrator for gyro rate output voltages
NPO-11499 B72-10555 01

Diode-quad bridge for reactive transducers and FM discriminators
ARC-10364 B72-10691 01

ELECTRIC DIPOLES
Promotion of dropwise condensation of ethyl alcohol, methyl alcohol, and acetone by polytetrafluoroethylene
LANGLEY-10940 B72-10115 04

ELECTRIC DISCHARGES
Effect of thermal discharges on the mass energy balance of Lake Michigan
AEC-10013 B72-10004 03

Control of oscillations in a discharge circuit
ARC-10556 B72-10304 01

A simple tachometer circuit
ARC-10603 B72-10308 01

Novel dielectric reduces corona breakdown in ac capacitors
M-FS-21486 B72-10505 01

Gate protective device for SOS array
HQ-10745 B72-10755 01

ELECTRIC ENERGY STORAGE
Aluminum nitride insulating films for MOSFET devices
NPO-11859 B72-10425 04

Improved operation of rechargeable oxygen electrodes
LEWIS-11619 B72-10479 01

ELECTRIC EQUIPMENT
Control of oscillations in a discharge circuit
ARC-10556 B72-10304 01

ELECTRIC MOTORS

A simple tachometer circuit
ARC-10603 B72-10308 01

Survey of aircraft electrical power systems
LEWIS-11678 B72-10383 02

Aluminum nitride insulating films for MOSFET devices
NPO-11859 B72-10425 04

Cathode for use with low density gases
HQ-10687 B72-10530 01

Advanced high-temperature electromagnetic pump
LEWIS-11283 B72-10537 07

Dc motor proportional control system for orthotic devices
M-FS-21573 B72-10617 05

A simple, efficient resistance soldering apparatus
GSFC-10913 B72-10649 08

An optical quality meter suitable for cryogenic liquids
LEWIS-11814 B72-10686 06

Automatic method of measuring silicon-controlled-rectifier holding current
LEWIS-11898 B72-10752 02

ELECTRIC FIELD STRENGTH
Pseudo-saturating power converter
NPO-11368 B72-10042 01

ELECTRIC FIELDS
Lightweight, broad-band spectrum analyzer
ARC-10405 B72-10060 01

Introduction of lithium into the front surface of solar cells
NPO-11404 B72-10086 02

Device for measuring electric fields
ARC-10164 B72-10148 03

Improved high voltage insulator for use in vacuum
LEWIS-11401 B72-10181 01

Aluminum nitride insulating films for MOSFET devices
NPO-11859 B72-10425 04

ELECTRIC FILTERS
Technique for refocusing, decompressing, and conditioning spent electron beams
LEWIS-11617 B72-10727 03

ELECTRIC FUSES
High voltage protection network
ARC-10197 B72-10119 02

ELECTRIC GENERATORS
Effect of thermal discharges on the mass energy balance of Lake Michigan
AEC-10013 B72-10004 03

Pseudo-saturating power converter
NPO-11368 B72-10042 01

Survey of aircraft electrical power systems
LEWIS-11678 B72-10383 02

ELECTRIC MOTORS
Position indicating, rotating boom
LANGLEY-11202 B72-10066 07

Compensating subreflector for two-reflector antennas: A concept
NPO-11503 B72-10093 06

Piezoelectric actuator uses sequentially-excited multiple elements: A concept
NPO-11527 B72-10096 01

Noncontact torque measurement using stroboscopic techniques
MSC-12282 B72-10332 07

A brushless dc spin motor for momentum exchange altitude control
M-FS-14952 B72-10448 02

- Dc motor proportional control system for orthotic devices
M-FS-21573 872-10617 05
- Waveguide switch protector
NPO-11592 872-10705 01
- ELECTRIC NETWORKS**
Topological solution of bilateral switching networks
ARC-10294 872-10055 01
- ELECTRIC POTENTIAL**
High noise immunity one shot
ARC-10137 872-10047 01
- Graph for locked rotor current
MSC-15703 872-10075 06
- Precision voltage regulator
NPO-11502 872-10092 01
- Piezoelectric actuator uses sequentially-excited multiple elements: A concept
NPO-11527 872-10096 01
- Stable photosensor amplifiers
NPO-11561 872-10100 01
- Hexapole magnet field analysis
GSFC-10995 872-10113 03
- Compensation of voltage drops in solid-state switches used with thermoelectric generators
NPO-11388 872-10138 01
- Temperature compensation of light-emitting diodes
ARC-10467 872-10218 01
- A continuous physiological data collector
M-FS-20835 872-10402 05
- A brushless dc spin motor for momentum exchange altitude control
M-FS-14952 872-10448 02
- Novel dielectric reduces corona breakdown in ac capacitors
M-FS-21486 872-10505 01
- Universal dc signal conditioner
MSC-17526 872-10510 02
- A voltage-tunable three-terminal Gunn device
HQ-10783 872-10518 01
- High-intensity source of extreme ultraviolet
HQ-10754 872-10528 03
- Electronic integrator for gyro rate output voltages
NPO-11499 872-10555 01
- Oscillating hot-wire anemometer
NPO-11634 872-10609 02
- Fast response densitometer for measuring liquid density
M-FS-14478 872-10664 02
- Irradiation of MOS-FET devices to provide desired logic functions
GSFC-11061 872-10719 01
- ELECTRIC POWER**
A hybrid electromechanical solid state switch for ac power control
MSC-14005 872-10018 02
- Radioisotope thermionic power supply for spacecraft
ARC-10438 872-10212 03
- Computer program analyzes and monitors electrical power systems (POSIMO)
GSFC-11505 872-10610 09
- ELECTRIC POWER PLANTS**
Automatic lightning location system
AEC-10077 872-10372 02
- ELECTRIC POWER SUPPLIES**
Improved operation of rechargeable oxygen electrodes
LEWIS-11619 872-10479 01
- Computer program analyzes and monitors electrical power systems (POSIMO)
GSFC-11505 872-10610 09
- Peak-power-point monitor for solar panel
NPO-11708 872-10694 02
- Optimization of fluid line sizes with pumping power penalty IBM-360 computer program
MSC-17930 872-10722 06
- ELECTRIC POWER TRANSMISSION**
Computer program analyzes and monitors electrical power systems (POSIMO)
GSFC-11505 872-10610 09
- ELECTRIC PROPULSION**
Radioisotope thermionic power supply for spacecraft
ARC-10438 872-10212 03
- Optimization technique for problems with an inequality constraint
ARC-10522 872-10222 09
- Rapid analysis of electric propulsion missions
ARC-10430 872-10299 09
- ELECTRIC PULSES**
Inertial reference unit
NPO-11518 872-10094 02
- Optical shutter for use in shock tubes
ARC-10516 872-10128 03
- Lightning flash detection system
ARC-10562 872-10272 02
- ELECTRIC RELAYS**
Current switch has built-in time delay: A concept
MSC-17324 872-10453 01
- Sprag solenoid brake
M-FS-21846 872-10669 06
- Waveguide switch protector
NPO-11592 872-10705 01
- ELECTRIC SPARKS**
Optical alignment of electrodes on electrical discharge machines
XAC-09489 872-10036 07
- Spark ultrasonic transducer
M-FS-21233 872-10594 04
- ELECTRIC SWITCHES**
Soldering iron temperature indicator
NPO-11545 872-10098 02
- Time-adjusted variable resistor
NPO-11306 872-10116 01
- Compensation of voltage drops in solid-state switches used with thermoelectric generators
NPO-11388 872-10138 01
- Miniature intermittent contact switch
ARC-10450 872-10452 01
- Indexing film with a fluidic sensor
MSC-14117 872-10501 02
- Waveguide switch protector
NPO-11592 872-10705 01
- ELECTRIC TERMINALS**
Circuit controls turn-on current
NPO-11339 872-10079 01
- Driver circuit for inductive loads
ARC-10073 872-10268 01
- Magnet-wire wrapping tool for integrated circuits
NPO-11815 872-10426 07
- Improved electrical spot terminals
NPO-10034 872-10492 01
- ELECTRIC WIRE**
Electrical grounding bracket
ARC-10041 872-10045 01
- Improved universal electrical connector
M-FS-14741 872-10363 01
- Improved electrical spot terminals
NPO-10034 872-10492 01
- A simple, efficient resistance soldering apparatus
GSFC-10913 872-10649 08
- ELECTRICAL ENGINEERING**
Zipper-type electrical connectors
NPO-11639 872-10159 01
- ELECTRICAL FAULTS**
Driver circuit for inductive loads
ARC-10073 872-10268 01
- High intensity solar cell radiometer
LEWIS-11549 872-10480 01
- Novel dielectric reduces corona breakdown in ac capacitors
M-FS-21486 872-10505 01
- High temperature gallium phosphide rectifiers
LEWIS-11804 872-10673 01
- Gate protective device for SOS array
HQ-10745 872-10755 01
- ELECTRICAL GROUNDING**
Electrical grounding bracket
ARC-10041 872-10045 01
- ELECTRICAL IMPEDANCE**
Circuit permits independent adjustment of gain and offset at constant input impedance
ARC-10348 872-10057 01
- Driver circuit for inductive loads
ARC-10073 872-10268 01
- ELECTRICAL INSULATION**
Zipper-type electrical connectors
NPO-11639 872-10159 01
- High voltage electrical insulation coating for refractory materials
LEWIS-11479 872-10290 04
- Protective encapsulation of implantable biotelemetry units
ARC-10514 872-10301 05
- Aluminum nitride insulating films for MOSFET devices
NPO-11859 872-10425 04
- Insulated-gate field-effect transistor strain sensor
LANGLEY-11012 872-10731 01
- ELECTRICAL MEASUREMENT**
Peak-power-point monitor for solar panel
NPO-11708 872-10694 02
- ELECTRICAL PROPERTIES**
Improved device measures performance of batteries under load
ARC-10252 872-10051 02
- Selecting digital filters
M-FS-20933 872-10156 01
- Improved feedback shift register
NPO-10351 872-10226 01
- Control of oscillations in a discharge circuit
ARC-10556 872-10304 01
- A simple tachometer circuit
ARC-10603 872-10308 01
- Packaging concept for LSI beam lead integrated circuits
M-FS-21374 872-10329 07
- Overlap diffusion for increasing phototransistor dynamic range
M-FS-20407 872-10347 01
- Improved universal electrical connector
M-FS-14741 872-10363 01
- Aluminum nitride insulating films for MOSFET devices
NPO-11859 872-10425 04
- Fabrication techniques for organic electrolyte battery
AEC-10019 872-10428 08
- Miniature intermittent contact switch
ARC-10450 872-10452 01

SUBJECT INDEX

ELECTROMAGNETIC NOISE

- Improved operation of rechargeable oxygen electrodes
LEWIS-11619 B72-10479 01
- Cathode for use with low density gases
HQ-10687 B72-10530 01
- Thermal conductivity and electrical resistivity of porous materials
LEWIS-11754 B72-10587 04
- An optical quality meter suitable for cryogenic liquids
LEWIS-11814 B72-10686 06
- Analysis of circuits including magnetic cores (MTRAC)
NPO-11494 B72-10724 02
- Automatic method of measuring silicon-controlled-rectifier holding current
LEWIS-11898 B72-10752 02
- Gate protective device for SOS array
HQ-10745 B72-10755 01
- ### ELECTRICAL RESISTANCE
- Miniature intermittent contact switch
ARC-10450 B72-10271 01
- Overflow sensor for cryogenic-fluid vessels
NPO-10619 B72-10554 03
- A simple, efficient resistance soldering apparatus
GSFC-10913 B72-10649 08
- ### ELECTRICAL RESISTIVITY
- Beryllium thin films for resistor applications
ARC-10485 B72-10021 01
- Time-adjusted variable resistor
NPO-11306 B72-10116 01
- ### ELECTRO-OPTICS
- Interferometric measurement of the velocity of radiating particles
HQ-10371 B72-10495 03
- A stable liquid crystal for electro-optical displays
HQ-10714 B72-10746 04
- ### ELECTROCARDIOGRAPHY
- Implanted telemeter for electrocardiogram and body temperature
XAC-08505 B72-10035 05
- A differential ECG amplifier with single-ended output
ARC-10411 B72-10061 05
- Narrowband, crystal-controlled biomedical telemetry system
ARC-10708 B72-10255 01
- Compression and R-wave detection of ECG/VCG data
MSC-14126 B72-10391 05
- Improved biomedical electrode
MSC-13648 B72-10642 05
- ### ELECTROCHEMICAL CELLS
- Improved device measures performance of batteries under load
ARC-10252 B72-10051 02
- Carbon dioxide concentrator
ARC-10245 B72-10194 05
- Method to determine vented electrochemical cell quality
GSFC-11216 B72-10396 04
- ### ELECTROCHEMICAL MACHINING
- Electro-chemical grinding
LANGLEY-10801 B72-10744 08
- ### ELECTROCHEMISTRY
- Fabrication techniques for organic electrolyte battery
AEC-10019 B72-10428 08
- Metered oxygen supply aids treatment of domestic sewage
ARC-10024 B72-10557 05
- ### ELECTRODEPOSITION
- Annular objective apertures improve resolution of electron microscopes
ARC-10448 B72-10171 03
- ### ELECTRODES
- Optical alignment of electrodes on electrical discharge machines
XAC-09489 B72-10036 07
- Electrodes for sealed secondary batteries
ARC-10238 B72-10050 02
- Low noise electromagnetic flowmeter
M-FS-21291 B72-10108 02
- High-temperature, long-life thyatron
LEWIS-11327 B72-10134 01
- Gate protective device for insulated gate field-effect transistors
M-FS-21626 B72-10149 01
- Aircrew oxygen system
ARC-10247 B72-10195 05
- An electrohydrodynamic heat pipe
ARC-10601 B72-10251 03
- High efficiency collector for microwave tubes
LEWIS-11192 B72-10259 03
- A sensitive image intensifier which uses inert gas
LRL-10024 B72-10312 03
- Fabrication techniques for organic electrolyte battery
AEC-10019 B72-10428 08
- Improved operation of rechargeable oxygen electrodes
LEWIS-11619 B72-10479 01
- Al/C12 molten salt battery
HQ-10696 B72-10527 01
- Sensor capsule for diagnosis of gastric disorders
HQ-10767 B72-10531 05
- Metered oxygen supply aids treatment of domestic sewage
ARC-10024 B72-10557 05
- Spark ultrasonic transducer
M-FS-21233 B72-10594 04
- Improved biomedical electrode
MSC-13648 B72-10642 05
- Improved electrodes for skin contacts
M-FS-21926 B72-10698 05
- Thin-film ultraviolet detector and spectrometer
NPO-11432 B72-10701 03
- Improved photoetching fabrication method
LEWIS-11268 B72-10745 08
- ### ELECTRODYNAMICS
- Electrodynamic actuators for rocket engine valves
ARC-10486 B72-10009 06
- ### ELECTROENCEPHALOGRAPHY
- Narrowband, crystal-controlled biomedical telemetry system
ARC-10708 B72-10255 01
- Improved biomedical electrode
MSC-13648 B72-10642 05
- ### ELECTROFORMING
- Joining porous components to solid metal structures
LEWIS-11259 B72-10754 08
- ### ELECTROHYDRODYNAMICS
- An electrohydrodynamic heat pipe
ARC-10601 B72-10251 03
- ### ELECTROLYSIS
- Oxygen pressure control for electrolysis cells
ARC-10250 B72-10074 02
- Cell for electrolysis of water vapor
ARC-10521 B72-10166 03
- Space-suit carbon dioxide absorption system: A concept
ARC-10546 B72-10168 05
- Aircrew oxygen system
ARC-10247 B72-10195 05
- Hydrogen eliminator
ARC-10408 B72-10208 03
- Counter lung
ARC-10248 B72-10219 05
- Water cavity degasser for electrolysis cells
ARC-10244 B72-10246 03
- Oxygen reclamation with solid oxide electrolytes
ARC-10487 B72-10273 03
- Method of determining vented electrochemical cell quality
GSFC-11216 B72-10396 04
- ### ELECTROLYTES
- Carbon dioxide concentrator
ARC-10245 B72-10194 05
- Fabrication of large ceramic electrolyte disks
ARC-10320 B72-10202 03
- Improved silver-zinc battery-terminal seals
LEWIS-11615 B72-10581 06
- Improved biomedical electrode
MSC-13648 B72-10642 05
- ### ELECTROLYTIC CELLS
- Oxygen pressure control for electrolysis cells
ARC-10250 B72-10074 02
- Cell for electrolysis of water vapor
ARC-10521 B72-10166 03
- Fabrication of large ceramic electrolyte disks
ARC-10320 B72-10202 03
- Water cavity degasser for electrolysis cells
ARC-10244 B72-10246 03
- Oxygen reclamation with solid oxide electrolytes
ARC-10487 B72-10273 03
- Fabrication techniques for organic electrolyte battery
AEC-10019 B72-10428 08
- ### ELECTROMAGNETIC ABSORPTION
- Ear oximeter-transducer monitors four physiological responses
XAC-05422 B72-10224 05
- ### ELECTROMAGNETIC FIELDS
- Pseudo-saturating power converter
NPO-11368 B72-10042 01
- Optical shutter for use in shock tubes
ARC-10516 B72-10128 03
- Laser beam deflection control: A concept
MSC-13814 B72-10411 02
- Current switch has built-in time delay: A concept
MSC-17324 B72-10453 01
- Computation of laminar heat transfer from gaseous plasmas in electromagnetic fields
NPO-11725 B72-10707 03
- ### ELECTROMAGNETIC MEASUREMENT
- Self-calibrating remote atmospheric electromagnetic probe and data acquisition system
M-FS-21212 B72-10665 03
- ### ELECTROMAGNETIC NOISE
- High noise immunity one shot
ARC-10137 B72-10047 01
- Arc protection system for high-power RF amplifiers
NPO-11560 B72-10099 02

Signal to noise measurement circuit
 GSFC-11239 B72-10102 01
 Low noise electromagnetic flowmeter
 M-FS-21291 B72-10108 02
 Potentiometer, constant tension and
 lubrication device
 KSC-10723 B72-10541 02

ELECTROMAGNETIC PUMPS
 Advanced high-temperature electromag-
 netic pump
 LEWIS-11283 B72-10537 07

ELECTROMAGNETIC RADIATION
 Conical electromagnetic radiation flux
 concentrator
 M-FS-21613 B72-10147 03
 Vibrating ribbon bolometer: A
 concept
 XAC-10768 B72-10170 03
 Simple dynamic electromagnetic radia-
 tion detector
 LEWIS-11159 B72-10227 03
 Redirecting electromagnetic beams
 through wide angles
 ARC-10602 B72-10307 03
 Wide-range nuclear magnetic resonance
 detector
 LEWIS-11513 B72-10478 03
 The thin film microwave iris
 LANGLEY-10511 B72-10548 02

**ELECTROMAGNETIC WAVE TRANS-
 MISSION**
 New pulsing technique may improve
 radar ranging systems
 ARC-10600 B72-10564 02

ELECTROMAGNETISM
 Linear accelerator: A concept
 KSC-10618 B72-10636 06

ELECTROMAGNETS
 Electrodynamical actuators for rocket
 engine valves
 ARC-10486 B72-10009 06
 Ferromagnetic-fluid logic devices
 ARC-10503 B72-10011 06
 Solenoid-operated swing-check valve
 XAC-10048 B72-10037 06
 New twisted intermetallic compound
 superconductor: A concept
 LEWIS-11015 B72-10282 04
 Electromagnetic rheometer
 ARC-10525 B72-10416 04

ELECTROMECHANICAL DEVICES
 Current switch has built-in time delay:
 A concept
 MSC-17324 B72-10453 01
 Improved measurement of depth
 perception
 M-FS-14133 B72-10730 05

ELECTROMECHANICS
 A hybrid electromechanical solid state
 switch for ac power control
 MSC-14005 B72-10018 02

ELECTROMETERS
 Lightweight, broad-band spectrum
 analyzer
 ARC-10405 B72-10060 01
 Fast response densitometer for measur-
 ing liquid density
 M-FS-14478 B72-10664 02

ELECTROMOTIVE FORCES
 Long-term drift of thermocouples at
 1600 K
 LEWIS-11471 B72-10176 01

ELECTROMYOGRAPHY
 Implanted telemeter for electrocardio-
 gram and body temperature
 XAC-08505 B72-10035 05

ELECTRON AVALANCHE

A sensitive image intensifier which uses
 inert gas
 LRL-10024 B72-10312 03

ELECTRON BEAM WELDING

Bonding titanium to Rene 41 alloy
 ARC-10311 B72-10041 08
 Portable electron beam weld chamber
 MSC-17738 B72-10338 06
 Joining porous components to solid
 metal structures
 LEWIS-11259 B72-10754 08

ELECTRON BEAMS

Beryllium thin films for resistor
 applications
 ARC-10485 B72-10021 01
 Advanced protective coating for
 superalloys
 LEWIS-11473 B72-10150 04
 High efficiency collector for microwave
 tubes
 LEWIS-11192 B72-10259 03
 Vidicon storage tube electrical
 input/output
 MSC-14053 B72-10285 02
 Electron beam chemistry produces high
 purity metals
 LEWIS-11639 B72-10439 04
 Metastable atom probe for measuring
 electron beam density profiles
 M-FS-21593 B72-10485 03
 Dual field alignment display and control
 for electron micropattern generator
 M-FS-22118 B72-10646 01
 Prevention of cathode damage from
 positive ion bombardment
 HQ-10688 B72-10654 03
 Two-speed deflection system for elec-
 tron micropattern generator
 M-FS-22117 B72-10668 02
 Technique for refocusing, decompress-
 ing, and conditioning spent electron
 beams
 LEWIS-11617 B72-10727 03

ELECTRON BOMBARDMENT

Device for measuring electric fields
 ARC-10164 B72-10148 03
 Improved high voltage insulator for use
 in vacuum
 LEWIS-11401 B72-10181 01
 A visual-display and storage device
 GSFC-10901 B72-10647 02

**ELECTRON DENSITY (CONCENTRA-
 TION)**

Properties of ionization breakdown of
 air at microwave frequencies and optimi-
 zation of component dimensions for max-
 imum microwave power
 M-FS-21924 B72-10316 01
 Measurement of electron density and
 temperature in plasmas
 ARC-10598 B72-10563 03

ELECTRON EMISSION

Cathode for use with low density
 gases
 HQ-10687 B72-10530 01
 Prevention of cathode damage from
 positive ion bombardment
 HQ-10688 B72-10654 03

ELECTRON ENERGY

Properties of ionization breakdown of
 air at microwave frequencies and optimi-
 zation of component dimensions for max-
 imum microwave power
 M-FS-21924 B72-10316 01

ELECTRON GUNS

Portable electron beam weld chamber
 MSC-17738 B72-10338 06
 Metastable atom probe for measuring
 electron beam density profiles
 M-FS-21593 B72-10485 03

ELECTRON IRRADIATION

Irradiation of MOS-FET devices to
 provide desired logic functions
 GSFC-11061 B72-10719 01

ELECTRON MICROSCOPES

Annular objective apertures improve
 resolution of electron microscopes
 ARC-10448 B72-10171 03
 Silver stain for electron microscopy
 ARC-10661 B72-10415 05
 Analysis of microsize particulates
 ARC-10647 B72-10565 04
 Dual field alignment display and control
 for electron micropattern generator
 M-FS-22118 B72-10646 01

**ELECTRON PARAMAGNETIC
 RESONANCE**

A dual-beam actinic light source for
 photosynthesis research
 ARC-10351 B72-10205 05

ELECTRON PLASMA

Laser frequency modulation with elec-
 tron plasma
 AEC-10079 B72-10373 03

ELECTRON RADIATION

Radiation-induced nickel deposits
 LEWIS-10965 B72-10456 04

ELECTRON TUBES

Roll function in a flight simulator
 ARC-10557 B72-10417 02

ELECTRONIC CONTROL

Illumination control system
 ARC-10527 B72-10167 02
 Feedback control of variable conduct-
 ance heat pipes
 ARC-10460 B72-10169 03
 Improved feedback shift register
 NPO-10351 B72-10226 01

ELECTRONIC EQUIPMENT

Peak acceleration limiter
 NPO-10556 B72-10007 01
 Improved audio reproduction system
 ARC-10404 B72-10059 01
 Quartz crystal microbalance use in
 biological studies
 NPO-11346 B72-10243 05
 Dual redundant core memory systems
 MSC-13993 B72-10261 09
 Packaging concept for LSI beam lead
 integrated circuits
 M-FS-21374 B72-10329 07
 Portable electron beam weld chamber
 MSC-17738 B72-10338 06
 A closed loop cryogenic environment
 pressure regulating system
 MSC-13880 B72-10390 02
 Roll function in a flight simulator
 ARC-10557 B72-10417 02
 Very high speed direct-readout, control
 and recording system
 M-FS-20658 B72-10442 02
 Systems effectiveness evaluation
 program
 HQ-10306 B72-10458 09
 Wide-range nuclear magnetic resonance
 detector
 LEWIS-11513 B72-10478 03
 A system for early warning of bearing
 failure
 M-FS-21877 B72-10494 06

- Interferometric measurement of the velocity of radiating particles
HQ-10371 B72-10495 03
- Pulse-width-modulated device for precision temperature control
NPO-11407 B72-10507 02
- Electronic circuit detects left ventricular ejection events in cardiovascular system
LEWIS-11581 B72-10512 05
- A compact battery powered digital thermometer
MSC-14084 B72-10545 02
- Photomultiplier blanking circuit
ARC-10593 B72-10561 01
- Remote measurement of the water content of snowpacks
ARC-10651 B72-10567 03
- An absentee monitoring device
KSC-10668 B72-10578 01
- A range expanding signal conditioner
M-FS-21720 B72-10639 02
- Dual field alignment display and control for electron micropattern generator
M-FS-22118 B72-10646 01
- Speech therapy and voice recognition instrument
HQ-10628 B72-10652 05
- Analytic procedures for determining dimensional redundancies in electronic devices
HQ-10709 B72-10656 09
- Two-speed deflection system for electron micropattern generator
M-FS-22117 B72-10668 02
- An improved data transfer and storage technique for hybrid computation
M-FS-22043 B72-10680 02
- Low distortion automatic phase control circuit
M-FS-21671 B72-10682 02
- New detection method for rolling element and bearing defects
M-FS-21911 B72-10689 06
- Technique for refocusing, decompressing, and conditioning spent electron beams
LEWIS-11617 B72-10727 03
- Design of microstrip components by computer
LANGLEY-11210 B72-10741 01
- Automated analysis of blood pressure measurements (Korotkov sound)
MSC-13999 B72-10756 05
- ELECTRONIC EQUIPMENT TESTS**
Specification guidelines for hybrid microcircuits
M-FS-22090 B72-10474 01
- ELECTRONIC MODULES**
Broadband RF-distribution amplifier
NPO-11401 B72-10245 01
- Improved thermally conducting electron transfer polymers
GSFC-11304 B72-10291 04
- Protective encapsulation of implantable biotelemetry units
ARC-10514 B72-10301 05
- Acoustical analysis system
GSFC-11087 B72-10751 02
- ELECTRONIC PACKAGING**
Packaging concept for LSI beam lead integrated circuits
M-FS-21374 B72-10329 07
- Specification guidelines for hybrid microcircuits
M-FS-22090 B72-10474 01
- Two autowire versions for CDC-3200 and IBM-360
GSFC-11526 B72-10608 09
- ELECTRONS**
High efficiency collector for microwave tubes
LEWIS-11192 B72-10259 03
- A visual-display and storage device
GSFC-10901 B72-10647 02
- ELECTROPLATING**
Piezoelectric actuator uses sequentially-excited multiple elements: A concept
NPO-11527 B72-10096 01
- Annular objective apertures improve resolution of electron microscopes
ARC-10448 B72-10171 03
- High-temperature ceramic-to-ceramic seals
ARC-10319 B72-10199 04
- Humidity resistant solar cell contacts
HQ-10674 B72-10517 04
- ELEMENTARY PARTICLES**
A study of radiation environment in space and its biological effects
HQ-10798 B72-10662 03
- ELEVATORS (LIFTS)**
A cable stabilizer for outdoor elevators
KSC-10513 B72-10283 07
- A tool for measuring elevator cable tension
KSC-10708 B72-10509 07
- ELONGATION**
Development of a polyimide for use as a temperature and solvent resistant sealant
M-FS-21325 B72-10262 04
- Adhesive for aluminum withstands cryogenic temperatures
M-FS-16848 B72-10346 04
- Leaching of nitroso rubber material removes uncured polymer
MSC-17185 B72-10449 04
- A monostrain test apparatus
M-FS-24221 B72-10679 06
- ELUTION**
A method of isolating organic compounds present in water
AEC-10010 B72-10044 04
- EMBRITTELEMENT**
Advanced alloy design technique: High temperature cobalt base superalloy
LEWIS-10436 B72-10514 04
- EMERGENCY BREATHING TECHNIQUES**
Breathing-metabolic simulator
HQ-10766 B72-10657 05
- EMISSION**
Quick release acoustic sensor holding fixture
MSC-17457 B72-10076 02
- Airflow distribution control for improved turbine engine performance
LEWIS-11593 B72-10178 07
- EMISSION SPECTRA**
Liquid-helium-cooled Michelson interferometer
ARC-10554 B72-10217 03
- EMISSIONIVITY**
Photoemissive coating
M-FS-22003 B72-10638 08
- EMITTANCE**
Program for determination of radiation interchange factors
MSC-17563 B72-10071 09
- EMITTERS**
Coaxial inverted geometry epitaxial transistor
ARC-10330 B72-10056 01
- Frequency switch keyed oscillator
ARC-10412 B72-10124 01
- Advanced infrared photomultiplier
M-FS-20941 B72-10152 03
- ENCAPSULATING**
Halogenation of microcapsule walls
ARC-10410 B72-10161 04
- Improved synthesis of intermetal compounds
HQ-10690 B72-10172 04
- Improved thermally conducting electron transfer polymers
GSFC-11304 B72-10291 04
- Protective encapsulation of implantable biotelemetry units
ARC-10514 B72-10301 05
- ENDOTHERMIC REACTIONS**
Comparison of catalyst activity
ARC-10493 B72-10201 04
- ENERGY ABSORPTION**
Energy absorber uses expanded coiled tube
AEC-10044 B72-10239 06
- Energy absorbing system for mechanical impacts
NPO-10671 B72-10712 06
- ENERGY ABSORPTION FILMS**
Chuck for delicate drills
ARC-10660 B72-10414 07
- ENERGY CONVERSION**
Piezoelectric transducer mosaic
ARC-10509 B72-10014 01
- ENERGY DISSIPATION**
Improved high-performance shock tube
NPO-11885 B72-10242 03
- High efficiency collector for microwave tubes
LEWIS-11192 B72-10259 03
- Driver circuit for inductive loads
ARC-10073 B72-10268 01
- ENERGY DISTRIBUTION**
Effect of thermal discharges on the mass energy balance of Lake Michigan
AEC-10013 B72-10004 03
- A compact spectroradiometer for solar simulator measurements
HQ-10683 B72-10327 03
- ENERGY LEVELS**
Diatomic infrared gasdynamic laser permits selection of wavelengths
ARC-10370 B72-10206 03
- ENERGY STORAGE**
Improved high-performance shock tube
NPO-11885 B72-10242 03
- High efficiency collector for microwave tubes
LEWIS-11192 B72-10259 03
- ENERGY TRANSFER**
Chuck for delicate drills
ARC-10660 B72-10414 07
- Solar powered absorption cycle heat pump using phase change materials for energy storage
M-FS-21927 B72-10615 06
- ENGINE FAILURE**
Graph for locked rotor current
MSC-15703 B72-10075 06
- ENGINE PARTS**
Electro-chemical grinding
LANGLEY-10801 B72-10744 08

ENTHALPY

Computer program for natural gas flow through nozzles
LEWIS-11534 B72-10362 09

ENTROPY

Computer program for natural gas flow through nozzles
LEWIS-11534 B72-10362 09

ENVIRONMENTAL POLLUTION

Mercury in the environment
AEC-10048 B72-10233 05
Phosphorus in land-water systems
AEC-10049 B72-10429 05

ENVIRONMENTAL CONTROL

Fluidized-bed combustion reduces atmospheric pollutants
AEC-10085 B72-10431 04
Sterile chamber operation with bio-isolator suit system
LANGLEY-11054 B72-10547 05
Propulsion sizing program
MSC-14016 B72-10605 09
Automation of Bosch reaction for CO₂ reduction
M-FS-21674 B72-10666 04

ENVIRONMENTAL ENGINEERING

Effect of thermal discharges on the mass energy balance of Lake Michigan
AEC-10013 B72-10004 03
Automation of Bosch reaction for CO₂ reduction
M-FS-21674 B72-10666 04

ENVIRONMENTAL TESTS

Standard environmental testing practices
NPO-11567 B72-10101 02

ENVIRONMENTS

Quick, easy to prepare freeze-dried soups
MSC-14003 B72-10017 05
Watertight low-cost electrical connector
LEWIS-11552 B72-10506 01

ENZYME ACTIVITY

Stabilization of lactate dehydrogenase
ARC-10415 B72-10062 05
Immobilized phosphorylase for synthesis of polysaccharides from glucose
ARC-10680 B72-10550 04

ENZYMES

Insolubilized enzymes for food synthesis
ARC-10568 B72-10247 04
A reusable prepositioned ATP reaction chamber
HQ-10660 B72-10525 05

EPITAXY

Advanced infrared photomultiplier
M-FS-20941 B72-10152 03
A voltage-tunable three-terminal Gunn device
HQ-10783 B72-10518 01
Gate protective device for SOS array
HQ-10745 B72-10755 01

EPOXY COMPOUNDS

Structural design and stress analysis program for advanced composite filament-wound axisymmetric pressure vessels (COMTANK)
NPO-11943 B72-10073 09
Improved electrical spot terminals
NPO-10034 B72-10492 01

EPOXY RESINS

Lightweight, broad-band spectrum analyzer
ARC-10405 B72-10060 01

Pressure-probe assembly for wind tunnels

ARC-10569 B72-10248 03
Miniature intermittent contact switch
ARC-10450 B72-10271 01
A new vibration dampening adhesive
MSC-17668 B72-10284 04
Fabrication of uniaxial filament-reinforced epoxy tubes for structural application
LANGLEY-10203 B72-10340 04
Titanium reinforced boron polyimide composite
M-FS-21916 B72-10353 04
Equations to assess the impact resistance of fiber composites
LEWIS-11486 B72-10503 04
New type of trifunctional alcohol
NPO-10714 B72-10553 04
Improved silver-zinc battery-terminal seals
LEWIS-11615 B72-10581 06

EQUATIONS

A method for calculating the effects of design errors and measurement errors on pump performance
LEWIS-11503 B72-10292 07

EQUILIBRIUM

Algorithm for Liapunov stability analysis
ARC-10498 B72-10023 09
Composite mobile system for holographic nondestructive testing
M-FS-21704 B72-10351 03
Aerotherm chemical equilibrium (ACE) computer program
LEWIS-11722 B72-10739 09

EQUIPMENT SPECIFICATIONS

Prediction of ducted fan performance
ARC-10615 B72-10064 09
Low-friction ball-and-socket
NPO-11348 B72-10081 08
Selecting digital filters
M-FS-20933 B72-10156 01
New full-complement ball bearing lubrication technique
MSC-13850 B72-10174 07
Improved feedback shift register
NPO-10351 B72-10226 01
Quartz crystal microbalance use in biological studies
NPO-11346 B72-10243 05
Thermal control for storage of cryogenic propellants in a multiple-tank system: A concept
ARC-10580 B72-10278 03
Design curve for liquid helium storage vessels
LEWIS-11498 B72-10286 02
Cutting thin sections of bone
ARC-10555 B72-10303 05
A simple tachometer circuit
ARC-10603 B72-10308 01
Tool carrier
M-FS-21469 B72-10319 07
Ball bearing protector
M-FS-21612 B72-10322 07
Remote weighing device
M-FS-21556 B72-10325 07
Small turbine-type flowmeters for liquid hydrogen
LEWIS-11535 B72-10331 06
A permeable rotating-wheel solvent extractor
LRL-10033 B72-10343 04
Stem clutch for motor driven valve
LRL-10032 B72-10345 07

Technique for producing wind-tunnel heat-transfer models

ARC-10658 B72-10349 08
Improved universal electrical connector
M-FS-14741 B72-10363 01
Leak decay method of helium bombardment leak testing
M-FS-24109 B72-10381 06
Rotary shutter mechanism contains optical elements
GSFC-11244 B72-10387 03
Two-axis leveling detector system
M-FS-21344 B72-10392 02
Rapid evaluation of reverse-osmosis membranes
ARC-10659 B72-10413 04
Right angle mounted cold trap
GSFC-11323 B72-10436 06
Efficient wire-grid duplexer-polarized for CO₂ lasers
GSFC-11403 B72-10440 03
Combination pressure regulator and safety valve: A Concept
MSC-14088 B72-10446 06
High-speed, self-acting shaft seal (circumferential type)
LEWIS-11274 B72-10447 07
Miniature intermittent contact switch
ARC-10450 B72-10452 01
Latch mechanism
M-FS-21606 B72-10457 08
Interferometer using RF switching matrix
GSFC-11051 B72-10462 01
Ball detent mechanism
M-FS-21735 B72-10470 07
Dry ice plug for hydraulic and pneumatic pipe flushing
MSC-12548 B72-10496 06
No-err typing aids
M-FS-15218 B72-10498 07
Tandem steerable running gear
M-FS-22012 B72-10499 07
Magnetic circuitry mutual coupling probe
M-FS-21664 B72-10535 02
Advanced high-temperature electromagnetic pump
LEWIS-11283 B72-10537 07
Self-aligning, low-pressure sealing poppet valve
MSC-17745 B72-10538 07
Film holder for curved vacuum platen
MSC-14120 B72-10542 07
An improved gas extraction furnace
MSC-14138 B72-10544 04
A compact battery powered digital thermometer
MSC-14084 B72-10545 02
Sterile chamber operation with bio-isolator suit system
LANGLEY-11054 B72-10547 05
Helium window for shock-tube monochromators
NPO-11852 B72-10556 03
Restraint and locomotion aid
ARC-10153 B72-10558 06
Vise to hold bones or other irregular objects
ARC-10679 B72-10569 07
Laser mass spectrometer
ARC-10687 B72-10571 03
Oscillation of laser-beam intensity as observed with beam splitters
ARC-10694 B72-10572 03
Self-deploying boom
GSFC-10566 B72-10574 07

- Leak test system
M-FS-21788 B72-10576 06
- High pressure liquid gas pump
MSC-14087 B72-10590 06
- Spark ultrasonic transducer
M-FS-21233 B72-10594 04
- Precision machining of steel
decahedrons
M-FS-21361 B72-10597 07
- Oscillating hot-wire anemometer
NPO-11634 B72-10609 02
- Computer program analyzes and monitors electrical power systems (POSIMO)
GSFC-11505 B72-10610 09
- A transmitting and reflecting diffuser for ultraviolet light
LANGLEY-10385 B72-10611 03
- Dc motor proportional control system for orthotic devices
M-FS-21573 B72-10617 05
- Magnetometer uses bismuth-selenide
LEWIS-11632 B72-10629 03
- Tissue holder for experimental and Demonstration Surgery
LEWIS-11755 B72-10630 05
- Use of small turbine-type flowmeters to measure flow in large pipes
LEWIS-11851 B72-10631 06
- Fill and vent quick disconnect
M-FS-21822 B72-10645 07
- A simple, efficient resistance soldering apparatus
GSFC-10913 B72-10649 08
- Automatic water inventory, collecting, and dispensing unit
LANGLEY-11071 B72-10663 06
- Sprag solenoid brake
M-FS-21846 B72-10669 06
- Improved lip seal for rotating shafts
LEWIS-11602 B72-10672 07
- A shut-off valve for flexible tubing
M-FS-21731 B72-10687 07
- New detection method for rolling element and bearing defects
M-FS-21911 B72-10689 06
- Concentric-seating poppet
NPO-11658 B72-10704 06
- Design of microstrip components by computer
LANGLEY-11210 B72-10741 01
- Automated analysis of blood pressure measurements (Korotkov sound)
MSC-13999 B72-10756 05
- EQUIPOTENTIALS**
Precision voltage regulator
NPO-11502 B72-10092 01
- EROSION**
A protective coating for stainless steel
LEWIS-11267 B72-10256 04
- Phosphorus in land-water systems
AEC-10049 B72-10429 05
- ERROR ANALYSIS**
Errors in hybrid computers
M-FS-21289 B72-10141 02
- Thermal analog device reduces machining errors
AEC-10080 B72-10237 08
- A method for calculating the effects of design errors and measurement errors on pump performance
LEWIS-11503 B72-10292 07
- Significance arithmetic experimental package (SIGPAC)
GSFC-11499 B72-10600 09
- Computer program to generate attitude error equations for a gimbaled platform
M-FS-21991 B72-10624 09
- A linear programming manual
HQ-10743 B72-10671 09
- ERROR CORRECTING DEVICES**
Solar sensor with autocollimator
ARC-10148 B72-10192 03
- No-err typing aids
M-FS-15218 B72-10498 07
- ERROR DETECTION CODES**
Techniques for improving reliability of computers
M-FS-21326 B72-10109 02
- Flexible desk top computers using Large Scale Integration (L.S.I.) chips
M-FS-21277 B72-10112 01
- ERROR FUNCTIONS**
Errors in hybrid computers
M-FS-21289 B72-10141 02
- ERROR SIGNALS**
Techniques for improving reliability of computers
M-FS-21326 B72-10109 02
- Illumination control system
ARC-10527 B72-10167 02
- ERRORS**
A method for calculating the effects of design errors and measurement errors on pump performance
LEWIS-11503 B72-10292 07
- Interplanetary Trajectories, Encke Method (ITEM)
GSFC-11576 B72-10604 09
- Two autowire versions for CDC-3200 and IBM-360
GSFC-11526 B72-10608 09
- ESCAPE SYSTEMS**
Cylindrically shaped rope ladder
M-FS-16319 B72-10688 07
- ESTERS**
New type of trifunctional alcohol
NPO-10714 B72-10553 04
- ESTIMATING**
Atmospheric density variations related to internal gravity waves
M-FS-21637 B72-10143 03
- ETCHANTS**
Improved photoetching fabrication method
LEWIS-11268 B72-10745 08
- ETCHING**
Annular objective apertures improve resolution of electron microscopes
ARC-10448 B72-10171 03
- Microminiature gas chromatographic column
ARC-10594 B72-10306 04
- Efficient wire-grid duplexer-polarized for CO2 lasers
GSFC-11403 B72-10440 03
- Sputter etching of hemispherical bearings
HQ-10712 B72-10534 08
- Improved photoetching fabrication method
LEWIS-11268 B72-10745 08
- ETHANE**
An absorption spectrum amplifier for determining gas composition
HQ-10752 B72-10524 03
- ETHYL ALCOHOL**
Stabilization of lactate dehydrogenase
ARC-10415 B72-10062 05
- Promotion of dropwise condensation of ethyl alcohol, methyl alcohol, and acetone by polytetrafluoroethylene
LANGLEY-10940 B72-10115 04
- ETHYLENE**
Flexible, low-cost silicon solar cell arrays
LEWIS-11069 B72-10177 02
- ETHYLENE OXIDE**
Functionally terminated liquid nitroso fluorocarbon terpolymers
M-FS-21539 B72-10493 04
- EUTECTICS**
Boron aluminum composite structures
M-FS-21571 B72-10386 04
- EVACUATING**
Free-radical solution-polymerization of trifluoronitrosomethane with tetrafluoroethylene
ARC-10567 B72-10419 04
- EVACUATING (VACUUM)**
Helium leak measurements using CO2 as a carrier
M-FS-21742 B72-10354 03
- New compression molding process of thermosetting plastic compounds
LANGLEY-10782 B72-10356 08
- EVAPORATION**
Beryllium thin films for resistor applications
ARC-10485 B72-10021 01
- Restartable heat pipe
ARC-10198 B72-10188 03
- EVAPORATIVE COOLING**
A cryopump for cooling objects at a distance
LRL-10031 B72-10314 03
- Freon 21 bearing lubrication and coolant system
HQ-10302 B72-10651 06
- EVAPORATORS**
Closed-cycle power supply for fluidic control systems
ARC-10480 B72-10163 06
- EXCITATION**
Pulse excitation of bolometer bridges
ARC-10292 B72-10054 01
- Polymeric coatings using electronic excitation
HQ-10698 B72-10257 04
- Alternating current losses in superconducting coils
M-FS-21129 B72-10360 03
- Enhanced Lamb dip for absolute laser frequency stabilization
HQ-10695 B72-10481 02
- EXHALATION**
Aircrew oxygen system
ARC-10247 B72-10195 05
- EXHAUST DIFFUSERS**
Airflow distribution control for improved turbine engine performance
LEWIS-11593 B72-10178 07
- EXHAUST GASES**
Fluidic systems may improve combustion in automotive engines
ARC-10582 B72-10250 06
- Safe transport of diborane in a dual refrigerant system: A concept
ARC-10559 B72-10277 03
- Air assist fuel nozzle reduces aircraft gas turbine engine emissions at idle operation
LEWIS-11512 B72-10434 07
- Squib-operated disconnect
NPO-11330 B72-10713 06
- EXHAUST SYSTEMS**
Carbon monoxide oxidation rates computed for automobile thermal reactor conditions
LEWIS-11638 B72-10137 04

- Fluidic systems may improve combustion in automotive engines
 ARC-10582 B72-10250 06
 Remote control flare stack igniter for combustible gases
 M-FS-21675 B72-10352 07
 Experimental study of flow distribution with circumferential manifolds
 LEWIS-11649 B72-10738 06
- EXOTHERMIC REACTIONS**
 Comparison of catalyst activity
 ARC-10493 B72-10201 04
 Nonflammable and abrasion resistant coating process for glass fibers
 MSC-14024 B72-10445 08
- EXPANDABLE STRUCTURES**
 Miniature high pressure regulator
 ARC-10428 B72-10211 07
- EXPELLANTS**
 Dry ice plug for hydraulic and pneumatic pipe flushing
 MSC-12548 B72-10496 06
- EXPERIMENTATION**
 Software control for large scale on-board checkout: A concept
 MSC-13977 B72-10015 09
 Speed enhancement of complementary MOS devices
 ARC-10387 B72-10184 01
 Composite casting demonstration
 M-FS-21668 B72-10266 04
 Real-time pair-feeding of animals
 ARC-10302 B72-10298 05
- EXPIRED AIR**
 Carbon dioxide concentrator
 ARC-10245 B72-10194 05
- EXPLOSIVE DEVICES**
 Squib-actuated disconnect device
 NPO-11544 B72-10097 06
 Explosive cord
 M-FS-21928 B72-10293 08
 Fluid operated quick release mechanism
 M-FS-20205 B72-10640 07
- EXPLOSIVE WELDING**
 Small-scale explosive welding of aluminum
 LANGLEY-10941 B72-10002 04
- EXPLOSIVES**
 Velocity accelerator for particles
 NPO-11349 B72-10082 03
 Polymeric binder for explosives
 AEC-10062 B72-10366 04
 A four-panel enclosure protects from explosion
 M-FS-21847 B72-10613 06
- EXPONENTIAL FUNCTIONS**
 Indefinite integrals of products of some exponential and trigonometric functions
 LEWIS-11493 B72-10225 09
- EXPOSURE**
 Hybrid holographic system
 M-FS-20074 B72-10260 03
 Composite mobile system for holographic nondestructive testing
 M-FS-21704 B72-10351 03
- EXPULSION BLADDERS**
 PTFE films with improved flexibility
 NPO-12028 B72-10551 04
 Automatic water inventory, collecting, and dispensing unit
 LANGLEY-11071 B72-10663 06
- EXTENSOMETERS**
 Bileaf mechanical strain gage
 ARC-10303 B72-10197 07
- EXTERNALLY BLOWN FLAPS**
 Ejector nozzle with massive blowing
 ARC-10621 B72-10693 06
- EXTRAPOLATION**
 An empirical relationship for the penetration of 1 to 3 MeV electrons
 LEWIS-11495 B72-10144 04
- EYE (ANATOMY)**
 Scanning technique for tracking small eye-movements
 ARC-10488 B72-10220 05
 Tissue holder for experimental and Demonstration Surgery
 LEWIS-11755 B72-10630 05
- EYE MOVEMENTS**
 Projections of scan patterns on human retina
 ARC-10181 B72-10193 05
 Scanning technique for tracking small eye-movements
 ARC-10488 B72-10220 05
- F**
- FABRICATION**
 Simple method for forming thin-wall pressure vessels
 ARC-10511 B72-10025 08
 Use of thin plastic films at cryogenic temperatures
 LEWIS-11047 B72-10038 04
 Nondestructive-test standards for evaluation of fiber-reinforced composites
 M-FS-21288 B72-10157 04
 Flexible, low-cost silicon solar cell arrays
 LEWIS-11069 B72-10177 02
 Packaging concept for LSI beam lead integrated circuits
 M-FS-21374 B72-10329 07
 Nondestructive testing for braze voids in thin panels by use of special coatings
 LANGLEY-10486 B72-10374 08
 Guidelines for fabrication of hybrid microcircuits
 M-FS-21964 B72-10393 01
 Improved silver-zinc battery-terminal seals
 LEWIS-11615 B72-10581 06
 Fabrication of cooled, graphite-lined structures
 LEWIS-11741 B72-10593 08
 Precision machining of steel decahedrons
 M-FS-21361 B72-10597 07
- FABRICS**
 Convoluted fabric for full-pressure gloves
 ARC-10529 B72-10215 04
 Nonflammable and abrasion resistant coating process for glass fibers
 MSC-14024 B72-10445 08
- FABRY-PEROT INTERFEROMETERS**
 Liquid-helium-cooled Michelson interferometer
 ARC-10554 B72-10217 03
- FACTORIALS**
 Optimizing designs of two-level factorial experiments given partial prior information (NAMER)
 LEWIS-11708 B72-10726 09
- FAILURE**
 Software control for large scale on-board checkout: A concept
 MSC-13977 B72-10015 09
- FAILURE ANALYSIS**
 Adhesion theory review
 AEC-10083 B72-10231 04
 Failure in glass
 AEC-10088 B72-10364 04
 Prediction of flow-induced failures of braided flexible hoses and bellows
 M-FS-19004 B72-10407 06
 Systems effectiveness evaluation program
 HQ-10306 B72-10458 09
 Analytical failure determination of flow-induced fatigue in bellows
 M-FS-18178 B72-10488 06
 A system for early warning of bearing failure
 M-FS-21877 B72-10494 06
 Redundant data management system
 M-FS-21831 B72-10589 09
 New detection method for rolling element and bearing defects
 M-FS-21911 B72-10689 06
- FAILURE MODES**
 Reliability analysis based on operational success criteria
 ARC-10490 B72-10214 09
 New detection method for rolling element and bearing defects
 M-FS-21911 B72-10689 06
- FARADAY EFFECT**
 Oxygen reclamation with solid oxide electrolytes
 ARC-10487 B72-10273 03
- FASTENERS**
 Tool carrier
 M-FS-21469 B72-10319 07
 Perload indicating turnbuckle
 M-FS-21488 B72-10355 07
 Quick-donning backpack harness
 LANGLEY-10102 B72-10641 05
- FATIGUE (MATERIALS)**
 Strain gage attachment by spot welding reduces the fatigue strength of Ti-6Al-4V, Rene 41, and Inconel X
 LANGLEY-10930 B72-10339 04
 Failure in glass
 AEC-10088 B72-10364 04
 Prediction of flow-induced failures of braided flexible hoses and bellows
 M-FS-19004 B72-10407 06
 Analytical failure determination of flow-induced fatigue in bellows
 M-FS-18178 B72-10488 06
 The weld-brazing metal joining process
 LANGLEY-11072 B72-10683 08
- FATIGUE LIFE**
 Common bearing material has highest fatigue life at moderate temperature
 LEWIS-11592 B72-10382 04
- FATIGUE TESTS**
 Strain gage attachment by spot welding reduces the fatigue strength of Ti-6Al-4V, Rene 41, and Inconel X
 LANGLEY-10930 B72-10339 04
 Common bearing material has highest fatigue life at moderate temperature
 LEWIS-11592 B72-10382 04
 A tool for cutting ultra thin slits in metals
 KSC-10770 B72-10433 07
- FEED SYSTEMS**
 Advanced high-temperature electromagnetic pump
 LEWIS-11283 B72-10537 07

Hydrophobic liquid/gas separator for heat pipes
ARC-10656 872-10549 03

FEEDBACK
Effect of thermal discharges on the mass energy balance of Lake Michigan
AEC-10013 872-10004 03
Inertial reference unit
NPO-11518 872-10094 02
Feedback control of variable conductance heat pipes
ARC-10460 872-10169 03
Vortex servovalve for fluidic or electrical input
ARC-10155 872-10173 07

FEEDBACK CIRCUITS
Wind tunnel buffet load measuring technique
ARC-10495 872-10022 06
Circuit permits independent adjustment of gain and offset at constant input impedance
ARC-10348 872-10057 01
Improved audio reproduction system
ARC-10404 872-10059 01
Stable photosensor amplifiers
NPO-11561 872-10100 01
Improved feedback shift register
NPO-10351 872-10226 01

FEEDBACK CONTROL
Adaptive position control loop
ARC-10255 872-10052 02
Oxygen pressure control for electrolysis cells
ARC-10250 872-10074 02
Differential input preamplifier
ARC-10489 872-10165 01
Counter lung
ARC-10248 872-10219 05
Scanning technique for tracking small eye-movements
ARC-10488 872-10220 05
Combination pressure regulator and safety valve: A concept
MSC-14088 872-10446 06

FEEDING (SUPPLYING)
Real-time pair-feeding of animals
ARC-10302 872-10298 05

FERRITES
Improved zinc oxide thermal control coatings
NPO-11139 872-10711 04

FERROMAGNETIC MATERIALS
Ferromagnetic solenoid with axial and radial displacement
NPO-11738 872-10241 06
Two-stage magnetometer measures weak magnetic fields
AEC-10068 872-10370 01

FERROMAGNETISM
Ferromagnetic-fluid logic devices
ARC-10503 872-10011 06

FERROUS METALS
Improved zinc oxide thermal control coatings
NPO-11139 872-10711 04

FIBER OPTICS
An approach to real-time process control of semiconductor wire-bonding
M-FS-21558 872-10644 08

FIBER STRENGTH
Floating zone process for drawing small diameter fibers of refractory materials
LEWIS-11380 872-10491 04

FIBERS

Nondestructive-test standards for evaluation of fiber-reinforced composites
M-FS-21288 872-10157 04
Equations to assess the impact resistance of fiber composites
LEWIS-11486 872-10503 04
High strength high modulus ceramic fiber
M-FS-21266 872-10592 04

FIELD COILS
Current switch has built-in time delay: A concept
MSC-17324 872-10453 01

FIELD EFFECT TRANSISTORS
A differential ECG amplifier with single-ended output
ARC-10411 872-10061 05
Stable photosensor amplifiers
NPO-11561 872-10100 01
Frequency switch keyed oscillator
ARC-10412 872-10124 01
Gate protective device for insulated gate field-effect transistors
M-FS-21626 872-10149 01
Differential input preamplifier
ARC-10489 872-10165 01
Low phase-shift amplifier
NPO-11663 872-10185 01
Aluminum nitride insulating films for MOSFET devices
NPO-11859 872-10425 04
Development of chip passivated monolithic complementary MISFET circuits with beam leads
M-FS-22264 872-10696 01
Irradiation of MOS-FET devices to provide desired logic functions
GSFC-11061 872-10719 01
Insulated-gate field-effect transistor strain sensor
LANGLEY-11012 872-10731 01

FILAMENT WINDING
Structural design and stress analysis program for advanced composite filament-wound axisymmetric pressure vessels (COMTANK)
NPO-11943 872-10073 09
New twisted intermetallic compound superconductor: A concept
LEWIS-11015 872-10282 04

FILAMENTS
Device for measuring electric fields
ARC-10164 872-10148 03
Titanium reinforced boron polyimide composite
M-FS-21916 872-10353 04
Floating zone process for drawing small diameter fibers of refractory materials
LEWIS-11380 872-10491 04
High strength high modulus ceramic fiber
M-FS-21266 872-10592 04

FILLERS
Removal of filler material from large high energy formed parts
M-FS-16326 872-10104 06

FILM CONDENSATION
Fabrication of carbon film composites for high-strength structures
ARC-10613 872-10423 04

FILM COOLING
Turbulent mixing film cooling correlation
LEWIS-11417 872-10326 07

FILM THICKNESS

Fabrication of carbon film composites for high-strength structures
ARC-10613 872-10423 04
Impact sensitivity of materials in contact with liquid and gaseous oxygen at high pressure
M-FS-21930 872-10476 06
Film handling system for laser scanner/recorder
MSC-14121 872-10539 07

FILMS
High speed, self-acting, face-contact shaft seal has low leakage and very low wear
LEWIS-11598 872-10114 07
An efficient, simple dialyzer
HQ-10741 872-10522 05

FILTERS
Voltage-tunable parallel-T filter for remote operation
NPO-11165 872-10077 01
Sheet plastic filters for solar cells
NPO-11464 872-10090 04
Two-stage coaxial gas compressor
ARC-10426 872-10210 06
A compact spectroradiometer for solar simulator measurements
HQ-10683 872-10327 03
A rapid, precise, reciprocating-movement color filter system
GSFC-11255 872-10497 07
Improved sampling of compressed gases for condensable hydrocarbon content
KSC-10304 872-10540 06

FILTRATION
Insolubilized enzymes for food synthesis
ARC-10568 872-10247 04
Stabilization of porous glass reverse-osmosis membranes
ARC-10646 872-10309 04
Purification of contaminated water by filtration through porous glass
ARC-10655 872-10412 04

FINGERS
Ultrasonic bone densitometer
M-FS-20994 872-10450 05

FINITE DIFFERENCE THEORY
Program for the transient response of ablating axisymmetric bodies including the effects of shape change
LANGLEY-11049 872-10068 09

FINITE ELEMENT METHOD
Vibrational transfer functions for complex structures
M-FS-20744 872-10648 09

FIRE EXTINGUISHERS
Hermetic isolation valves
ARC-10505 872-10013 06

FIRE PREVENTION
Flame resistant elastic elastomeric fibers
MSC-13923-4 872-10005 04
Fire retardant polyisocyanurate foam
ARC-10280 872-10269 04
Polyimide foams provide thermal insulation and fire protection
ARC-10464 872-10300 04
Nonflammable potting, encapsulating and/or conformal coating compound
MSC-13499 872-10337 04
Airlock caution and warning system
M-FS-21576 872-10467 02

An efficient prebreathing apparatus for humans during decompression
MSC-14151 B72-10690 05

FIREPROOFING
Halogenation of microcapsule walls
ARC-10410 B72-10161 04

FISSION PRODUCTS
Computer program for afterheat temperature distribution for mobile nuclear power plant
LEWIS-11693 B72-10634 09

FITTINGS
Laboratory leak tester provides high sensitivity
AEC-10042 B72-10240 03

FIXTURES
Three-point compound sine plate offers cost and weight savings
MSC-15818 B72-10118 07
Vise to hold bones or other irregular objects
ARC-10679 B72-10569 07

FLAME DEFLECTORS
A four-panel enclosure protects from explosion
M-FS-21847 B72-10613 06

FLAMMABILITY
Flame resistant elastic elastomeric fibers
MSC-13923-4 B72-10005 04
Hydrogen eliminator
ARC-10408 B72-10208 03
Fire retardant polyisocyanurate foam
ARC-10280 B72-10269 04
Nonflammable and abrasion resistant coating process for glass fibers
MSC-14024 B72-10445 08

FLANGES
Simple method for forming thin-wall pressure vessels
ARC-10511 B72-10025 08
Compensating subreflector for two-reflector antennas: A concept
NPO-11503 B72-10093 06
Hydraulic valve lifter remover
M-FS-21377 B72-10110 07
Preventing oil migration in vacuum systems
GSFC-11253 B72-10129 04
Ion plating seals microcracks or porous metal components
LEWIS-11657 B72-10397 04
Portable beveling tool
M-FS-16863 B72-10678 07
Gas-flow restrictor
NPO-10117 B72-10703 03

FLAPS (CONTROL SURFACES)
Reduction of fan noise: A concept
ARC-10312 B72-10040 06
Integrated flight controller for light aircraft
ARC-10456 B72-10213 06

FLASH LAMPS
Projections of scan patterns on human retina
ARC-10181 B72-10193 05
An absorption spectrum amplifier for determining gas composition
HQ-10752 B72-10524 03

FLASHOVER
Improved high voltage insulator for use in vacuum
LEWIS-11401 B72-10181 01

FLAT CONDUCTORS
Slitting flat conductor cables with the single cutting edge slitter
M-FS-20111 B72-10575 07

FLAT PLATES

Improvements of Zeyded method for calculating flutter of flat panels
M-FS-20955 B72-10399 06

FLAT SURFACES

Microbiological surface sampling cart
LANGLEY-11069 B72-10395 05

FLEXIBILITY

Longitudinal friction forces in piping design
M-FS-13754 B72-10103 01
Flexible, low-cost silicon solar cell arrays
LEWIS-11069 B72-10177 02
Heart catheter cable and connector
ARC-10406 B72-10200 05
Fire retardant polyisocyanurate foam
ARC-10280 B72-10269 04
Explosive cord
M-FS-21928 B72-10293 08
Space suit may have orthotic applications
ARC-10275 B72-10297 05
Nonflammable and abrasion resistant coating process for glass fibers
MSC-14024 B72-10445 08
Flexible shielding system for radiation protection
LRL-10028 B72-10500 03
PTFE films with improved flexibility
NPO-12028 B72-10551 04
Micro-scale crease-and-fold apparatus
NPO-12029 B72-10552 06

FLEXIBLE BODIES

Tool carrier
M-FS-21469 B72-10319 07
Prediction of flow-induced failures of braided flexible hoses and bellows
M-FS-19004 B72-10407 06
Flexible thermal device
M-FS-21630 B72-10612 04

FLEXING

An improved aesthesiometer
MSC-13609 B72-10032 05
Universal inverted flexure
ARC-10345 B72-10122 07
Analytical failure determination of flow-induced fatigue in bellows
M-FS-18178 B72-10488 06
Improved high-temperature gimbal joint
LEWIS-11705 B72-10489 06

FLIGHT CONTROL

Integrated flight controller for light aircraft
ARC-10456 B72-10213 06

FLIGHT CREWS

Aircrew oxygen system
ARC-10247 B72-10195 05

FLIGHT SAFETY

Cavitating Venturi sump
ARC-10504 B72-10012 06

FLIGHT SIMULATORS

Cine recording ophthalmoscope
ARC-10399 B72-10189 05
Ear oximeter-transducer monitors four physiological responses
XAC-05422 B72-10224 05
Roll function in a flight simulator
ARC-10557 B72-10417 02

FLIP-FLOPS

Arc protection system for high-power RF amplifiers
NPO-11560 B72-10099 02
Speed enhancement of complementary MOS devices
ARC-10387 B72-10184 01

Electronic circuit detects left ventricular ejection events in cardiovascular system
LEWIS-11581 B72-10512 05

A simplified, compact static shift register
HQ-10723 B72-10591 02

FLOATING

Floating zone process for drawing small diameter fibers of refractory materials
LEWIS-11380 B72-10491 04

FLOW

An economical vent cover
M-FS-20692 B72-10348 07
Computer program for quasi-three-dimensional calculation of surface velocities and choking flow for turbomachine blade rows
LEWIS-11635 B72-10586 09

FLOW CHARACTERISTICS

New polyimide polymer has excellent processing characteristics with improved thermo-oxidative and hydrolytic stabilities
LEWIS-11323 B72-10175 04

Controlled flow assembly

M-FS-21716 B72-10404 07
Free-radical solution-polymerization of trifluoronitrosomethane with tetrafluoroethylene
ARC-10567 B72-10419 04
Investigations of a turbulent jet in a crossflow
LEWIS-11680 B72-10437 06
Slot configuration for axial-flow turbomachinery blades
LEWIS-11572 B72-10484 07

FLOW COEFFICIENTS

Numerical solution of potential flow problems in terms of flux components
M-FS-21751 B72-10667 09

FLOW DEFLECTION

Slot configuration for axial-flow turbomachinery blades
LEWIS-11572 B72-10484 07

FLOW DIRECTION INDICATORS

Nonsteady flow-direction measurement
LEWIS-11499 B72-10403 06
Oscillating hot-wire anemometer
NPO-11634 B72-10609 02

FLOW DISTRIBUTION

Misfit and miss-drag programs
LANGLEY-10932 B72-10153 09
Flow equation for porous plug and capillary tube flow restrictors
GSFC-11387 B72-10289 06
Probe measures gas and liquid mass flux in high mass flow ratio two-phase flows
LEWIS-11270 B72-10546 06

Thermal induced flow oscillations in heat exchangers for supercritical fluids
M-FS-21262 B72-10598 06

Experimental study of flow distribution with circumferential manifolds
LEWIS-11649 B72-10738 06

FLOW EQUATIONS

Flow equation for porous plug and capillary tube flow restrictors
GSFC-11387 B72-10289 06

Numerical solution of potential flow problems in terms of flux components
M-FS-21751 B72-10667 09

FLOW GEOMETRY

Investigations of a turbulent jet in a crossflow
LEWIS-11680 B72-10437 06

FLOW GRAPHS

Numerical solution of potential flow problems in terms of flux components
M-FS-21751 872-10667 09

FLOW MEASUREMENT

Low noise electromagnetic flowmeter
M-FS-21291 872-10108 02

Cryogenic gel flow viscometer.
ARC-10523 872-10180 03

Flow equation for porous plug and capillary tube flow restrictors
GSFC-11387 872-10289 06

Small turbine-type flowmeters for liquid hydrogen
LEWIS-11535 872-10331 06

A sonic transducer to detect fluid leaks
KSC-10704 872-10376 01

Nonsteady flow-direction measurement
LEWIS-11499 872-10403 06

Intravenous fluid flow meter concept for zero gravity environment
MSC-14123 872-10461 05

Improved sampling of compressed gases for condensable hydrocarbon content
KSC-10304 872-10540 06

Overflow sensor for cryogenic-fluid vessels
NPO-10619 872-10554 03

Use of small turbine-type flowmeters to measure flow in large pipes
LEWIS-11851 872-10631 06

An optical quality meter suitable for cryogenic liquids
LEWIS-11814 872-10686 06

FLOW REGULATORS

Propellant-powered actuator for gas generators
ARC-10484 872-10008 03

Combination throttle and shutoff valve
M-FS-21513 872-10287 07

Small turbine-type flowmeters for liquid hydrogen
LEWIS-11535 872-10331 06

Controlled flow assembly
M-FS-21716 872-10404 07

Self-aligning, low-pressure sealing poppet valve
MSC-17745 872-10538 07

Automatic water inventory, collecting, and dispensing unit
LANGLEY-11071 872-10663 06

Gas-flow restrictor
NPO-10117 872-10703 03

Implantable drug therapy device: A concept
NPO-11934 872-10708 05

FLOW RESISTANCE

Flow equation for porous plug and capillary tube flow restrictors
GSFC-11387 872-10289 06

A shut-off valve for flexible tubing
M-FS-21731 872-10687 07

Experimental study of flow distribution with circumferential manifolds
LEWIS-11649 872-10738 06

FLOW STABILITY

Nonsteady flow-direction measurement
LEWIS-11499 872-10403 06

FLOW VELOCITY

Cryogenic gel flow viscometer
ARC-10523 872-10180 03

Polymeric coatings using electronic excitation
HQ-10698 872-10257 04

Probe measures gas and liquid mass flux in high mass flow ratio two-phase flows

LEWIS-11270 872-10546 06

Oscillating hot-wire anemometer
NPO-11634 872-10609 02

Accurate measurement of gas volumes by liquid displacement
ARC-10723 872-10699 03

Gas-flow restrictor
NPO-10117 872-10703 03

Transonic divider for gas chromatograph effluents
NPO-11479 872-10706 03

Optimization of fluid line sizes with pumping power penalty IBM-360 computer program
MSC-17930 872-10722 06

FLOW VISUALIZATION

Hydraulic modeling of heat dispersion in large lakes
AEC-10003 872-10039 03

FLOWMETERS

Pressure sensitive gas flow meter
ARC-10219 872-10049 06

Low noise electromagnetic flowmeter
M-FS-21291 872-10108 02

Small turbine-type flowmeters for liquid hydrogen
LEWIS-11535 872-10331 06

Intravenous fluid flow meter concept for zero gravity environment
MSC-14123 872-10461 05

Use of small turbine-type flowmeters to measure flow in large pipes
LEWIS-11851 872-10631 06

FLOX

Fabrication of cooled, graphite-lined structures
LEWIS-11741 872-10593 08

FLUERICS

Vortex servovalve for fluidic or electrical input
ARC-10155 872-10173 07

FLUID AMPLIFIERS

Vortex servovalve for fluidic or electrical input
ARC-10155 872-10173 07

Integrated monopropellant thruster
NPO-12004 872-10502 06

FLUID DYNAMICS

Water cavity degasser for electrolysis cells
ARC-10244 872-10246 03

Cavitation data for hydraulic equipment
LEWIS-11642 872-10384 07

Water impact loads
M-FS-21955 872-10621 09

FLUID FILMS

Lubricant selection for gear designers
LEWIS-11483 872-10136 04

Angular velocity and acceleration meter
LEWIS-11466 872-10183 06

Chuck for delicate drills
ARC-10660 872-10414 07

FLUID FILTERS

A permeable rotating-wheel solvent extractor
LRL-10033 872-10343 04

Purification of contaminated water by filtration through porous glass
ARC-10655 872-10412 04

FLUID FLOW

Zero-leakage valves
ARC-10506 872-10024 06

Low noise electromagnetic flowmeter
M-FS-21291 872-10108 02

Fluidic ignition detection
M-FS-21498 872-10158 06

Fluidic pressure regulators
ARC-10474 872-10162 06

Prolate spheroidal slosh model for fluid motion
MSC-13864 872-10182 09

Turbopump radial and axial rotor support system
M-FS-21495 872-10264 07

Combination throttle and shutoff valve
M-FS-21513 872-10287 07

A sonic transducer to detect fluid leaks
KSC-10704 872-10376 01

A closed loop cryogenic environment pressure regulating system
MSC-13880 872-10390 02

A valve concept for remote fluid flow control
M-FS-16097 872-10400 07

Prediction of flow-induced failures of braided flexible hoses and bellows
M-FS-19004 872-10407 06

Intravenous fluid flow meter concept for zero gravity environment
MSC-14123 872-10461 05

Analytical failure determination of flow-induced fatigue in bellows
M-FS-18178 872-10488 06

Self-aligning, low-pressure sealing poppet valve
MSC-17745 872-10538 07

A thermocouple thermode for small animals
ARC-10550 872-10559 05

Thermal induced flow oscillations in heat exchangers for supercritical fluids
M-FS-21262 872-10598 06

Use of small turbine-type flowmeters to measure flow in large pipes
LEWIS-11851 872-10631 06

Automatic water inventory, collecting, and dispensing unit
LANGLEY-11071 872-10663 06

Fast response densitometer for measuring liquid density
M-FS-14478 872-10664 02

Numerical solution of potential flow problems in terms of flux components
M-FS-21751 872-10667 09

Propellant feed systems transients
MSC-17848 872-10677 06

Accurate measurement of gas volumes by liquid displacement
ARC-10723 872-10699 03

Implantable drug therapy device: A concept
NPO-11934 872-10708 05

FLUID JETS
Hydraulic modeling of heat dispersion in large lakes
AEC-10003 872-10039 03

FLUID LOGIC
Ferromagnetic-fluid logic devices
ARC-10503 872-10011 06

FLUID MECHANICS
Cavitating Venturi sump
ARC-10504 872-10012 06

Ferrofluidic solenoid with axial and radial displacement
NPO-11738 872-10241 06

Nonsteady flow-direction measurement
LEWIS-11499 872-10403 06

- Intravenous fluid flow meter concept for zero gravity environment
MSC-14123 B72-10461 05
- Water impact loads
M-FS-21955 B72-10621 09
- Design criteria monograph on turbopump inducers
LEWIS-11824 B72-10635 08
- A shut-off valve for flexible tubing
M-FS-21731 B72-10164 07
- FLUID POWER**
Integrated monopropellant thruster
NPO-12004 B72-10502 06
- FLUIDIC CIRCUITS**
Closed-cycle power supply for fluidic control systems
ARC-10480 B72-10163 06
- Interconnections for fluidic circuits
ARC-10481 B72-10164 02
- Fluidic systems may improve combustion in automotive engines
ARC-10582 B72-10250 06
- Integrated monopropellant thruster
NPO-12004 B72-10502 06
- FLUIDICS**
Gyro spring augmentation system
ARC-10496 B72-10010 06
- Ferromagnetic-fluid logic devices
ARC-10503 B72-10011 06
- Cavitating Venturi sump
ARC-10504 B72-10012 06
- Microresonator for damping flow oscillations
M-FS-18401 B72-10105 06
- Fluidic ignition detection
M-FS-21498 B72-10158 06
- Fluidic pressure regulators
ARC-10474 B72-10162 06
- Closed-cycle power supply for fluidic control systems
ARC-10480 B72-10163 06
- Continuous monitor for gas ratios in a mixture
LEWIS-11095 B72-10229 05
- Ferrofluidic solenoid with axial and radial displacement
NPO-11738 B72-10241 06
- Indexing film with a fluidic sensor
MSC-14117 B72-10501 02
- FLUIDIZED BED PROCESSORS**
Fluidized-bed combustion reduces atmospheric pollutants
AEC-10085 B72-10431 04
- FLUIDS**
Ferrofluidic solenoid with axial and radial displacement
NPO-11738 B72-10241 06
- Laser beam deflection control: A concept
MSC-13814 B72-10411 02
- Thermal induced flow oscillations in heat exchangers for supercritical fluids
M-FS-21262 B72-10598 06
- Linear accelerator: A concept
KSC-10618 B72-10636 06
- Fluid operated quick release mechanism
M-FS-20205 B72-10640 07
- High torque bellows seal rotary drive
LEWIS-11813 B72-10681 07
- Optimization of fluid line sizes with pumping power penalty IBM-360 computer program
MSC-17930 B72-10722 06
- FLUORESCENCE**
Illumination control system
ARC-10527 B72-10167 02
- Improved transmittance measurement with a magnesium oxide coated integrating sphere
LEWIS-11840 B72-10717 04
- FLUORINATION**
Flexible, low-cost silicon solar cell arrays
LEWIS-11069 B72-10177 02
- FLUORINE**
Main tank injection pressurization program
LEWIS-11368 B72-10069 09
- FLUORINE COMPOUNDS**
Free-radical solution-polymerization of trifluoronitrosomethane with tetrafluoroethylene
ARC-10567 B72-10419 04
- Preparation of stable colloidal dispersions in fluorinated liquids
HQ-10580 B72-10529 04
- FLUORO COMPOUNDS**
Technique for increasing yield of trifluoronitrosomethane-tetrafluoroethylene copolymer
ARC-10566 B72-10418 04
- FLUOROCARBONS**
Functionally terminated liquid nitroso fluorocarbon terpolymers
M-FS-21539 B72-10493 04
- FLUSHING**
Dry ice plug for hydraulic and pneumatic pipe flushing
MSC-12548 B72-10496 06
- FLUTTER**
Improvements of Zeyded method for calculating flutter of flat panels
M-FS-20955 B72-10399 06
- FLUX (RATE)**
Differential input preamplifier
ARC-10489 B72-10165 01
- Numerical solution of potential flow problems in terms of flux components
M-FS-21751 B72-10667 09
- FLUX DENSITY**
Conical electromagnetic radiation flux concentrator
M-FS-21613 B72-10147 03
- Acoustic spectral analysis and testing techniques
NPO-11554 B72-10341 03
- Al/C12 molten salt battery
HQ-10696 B72-10527 01
- Numerical solution of potential flow problems in terms of flux components
M-FS-21751 B72-10667 09
- FLYBY MISSIONS**
Rapid analysis of electric propulsion missions
ARC-10430 B72-10299 09
- FLYING SPOT SCANNERS**
Analog table look-up device identifies unknown terrain
MSC-13816 B72-10033 03
- Aircraft communication via telefacsimile system
M-FS-20839 B72-10139 02
- Projections of scan patterns on human retina
ARC-10181 B72-10193 05
- Roll function in a flight simulator
ARC-10557 B72-10417 02
- FOAMS**
Polyimide foams provide thermal insulation and fire protection
ARC-10464 B72-10300 04
- Evaluating foam heterogeneity
AEC-10046 B72-10365 04
- Deflection resistance indicator
M-FS-24010 B72-10401 04
- A monostrain test apparatus
M-FS-24221 B72-10679 06
- FOCUSING**
Hand-held photomicroscopy system
ARC-10468 B72-10190 03
- Projections of scan patterns on human retina
ARC-10181 B72-10193 05
- FOILS (MATERIALS)**
Aluminum foil interconnects for solar cell panels
ARC-10374 B72-10058 08
- Boron-10 loaded inorganic shielding material
M-FS-22280 B72-10740 04
- FOLDING**
Micro-scale crease-and-fold apparatus
NPO-12029 B72-10552 06
- FOOD**
Insolubilized enzymes for food synthesis
ARC-10568 B72-10247 04
- Effect of the method of process on the control of microbial growth by water activity in foods
MSC-14234 B72-10732 05
- FOOD INTAKE**
Mercury in the environment
AEC-10048 B72-10233 05
- Real-time pair-feeding of animals
ARC-10302 B72-10298 05
- FORCED VIBRATION**
Improvements of Zeyded method for calculating flutter of flat panels
M-FS-20955 B72-10399 06
- FOREST FIRE DETECTION**
Automatic lightning location system
AEC-10077 B72-10372 02
- FORMING TECHNIQUES**
Low cost anti-galling bushings
LEWIS-11724 B72-10359 08
- FORMULAS (MATHEMATICS)**
Three-point compound sine plate offers cost and weight savings
MSC-15818 B72-10118 07
- FORTAN**
Variable dimension automatic synthesis programs (VASP)
ARC-10616 B72-10065 09
- Program to determine radiating, nonadiabatic, inviscid flow over a blunt body by the method of integral relations
LANGLEY-11048 B72-10067 09
- Program for the transient response of ablating axisymmetric bodies including the effects of shape change
LANGLEY-11049 B72-10068 09
- Design of two-dimensional sharp-edged-throat supersonic nozzle with boundary-layer correction
LEWIS-11636 B72-10070 09
- Program for determination of radiation interchange factors
MSC-17563 B72-10071 09
- Wind trajectory tracing for air pollution studies (AIRPOL)
NPO-11892 B72-10072 09
- Structural design and stress analysis program for advanced composite filament-wound axisymmetric pressure vessels (COMTANK)
NPO-11943 B72-10073 09

SUBJECT INDEX

Program for calculating laminar and turbulent boundary layers in arbitrary pressure gradients
LEWIS-11097 B72-10111 09

Mislift and miss-drag programs
LANGLEY-10932 B72-10153 09

Computer program draws three-dimensional surfaces
LEWIS-10482 B72-10253 09

Snap dynamics
M-FS-21531 B72-10265 09

Rapid analysis of electric propulsion missions
ARC-10430 B72-10299 09

Cubic spline functions for curve fitting
LRL-10034 B72-10311 09

Memory reduction through higher level language hardware
M-FS-21128 B72-10350 09

Computer program for natural gas flow through nozzles
LEWIS-11534 B72-10362 09

FORTTRAN program for computing coordinates of circular-arc, single and tandem, turbine and compressor, blade sections on a plane
LEWIS-11237 B72-10405 09

Variable boundary II heat conduction
LEWIS-10679 B72-10444 09

Systems effectiveness evaluation program
HQ-10306 B72-10458 09

Computer program for calculating the temperature field of face seals
LEWIS-11110 B72-10483 09

Compensator design for low-sensitivity linear time-invariant systems. (COMPDES)
M-FS-21652 B72-10486 09

Chemical kinetics computer program for static and flow reactions
LEWIS-11467 B72-10580 04

Computer programs for the design of liquid-to-liquid jet pumps
LEWIS-11679 B72-10584 09

Computer program for fitting low-order polynomial splines by method of least squares
LEWIS-11651 B72-10585 09

Computer program for quasi-three-dimensional calculation of surface velocities and choking flow for turbomachine blade rows
LEWIS-11635 B72-10586 09

System/360 Computer Assisted Network Scheduling (CANS) System
GSFC-10909 B72-10599 09

Significance arithmetic experimental package (SIGPAC)
GSFC-11499 B72-10600 09

Response of a panel structure to reverberant acoustic excitation
M-FS-21774 B72-10603 06

Interplanetary Trajectories, Encke Method (ITEM)
GSFC-11576 B72-10604 09

Propulsion sizing program
MSC-14016 B72-10605 09

Program to produce horizontal stereographic print maps from Nimbus HRIR data
GSFC-11397 B72-10606 09

Two autowire versions for CDC-3200 and IBM-360
GSFC-11526 B72-10608 09

Source deck compression and update program (CAPS)
GSFC-11545 B72-10619 09

GPEDIT
GSFC-11308 B72-10620 09

Method for nonlinear exponential regression analysis
M-FS-21965 B72-10622 09

FORTTRAN manpower account program
NPO-11973 B72-10623 09

Program to reduce the size of structural matrices
MSC-17619 B72-10625 09

Computer program for afterheat temperature distribution for mobile nuclear power plant
LEWIS-11693 B72-10634 09

Analytic procedures for determining dimensional redundancies in electronic devices
HQ-10709 B72-10656 09

Integrated multi-path program analysis and cost technique (IMPACT)
M-FS-21880 B72-10676 09

Propellant feed systems transients
MSC-17848 B72-10677 06

Computer program for calculation of complex chemical equilibrium compositions
LEWIS-11714 B72-10718 09

Chrysler improved numerical differencing analyzer for third generation computers
CINDA-3G
MSC-11653 B72-10721 09

Optimization of fluid line sizes with pumping power penalty IBM-360 computer program
MSC-17930 B72-10722 06

Analysis of circuits including magnetic cores (MTRAC)
NPO-11494 B72-10724 02

Three bit mass spectral search program
NPO-11960 B72-10747 09

Final report on a study of low-density nozzle flows, with application to microthrust rockets
HQ-10761 B72-10748 06

Effects of nonuniform swash-plate stiffness on coupled blade-control system dynamics and stability
LANGLEY-11068 B72-10749 06

FORTTRAN read package
MSC-14161 B72-10750 09

FORTTRAN program for generating a two-dimensional orthogonal mesh between two arbitrary boundaries
LEWIS-11863 B72-10753 09

FOURIER TRANSFORMATION
Acoustic spectral analysis and testing techniques
NPO-11554 B72-10341 03

Compression and R-wave detection of ECG/VCG data
MSC-14126 B72-10391 05

FRACTIONATION
Phosphorus in land-water systems
AEC-10049 B72-10429 05

FRACTURE STRENGTH
Repeatable method of thermal stress fracture test of brittle materials
NUC-11019 B72-10258 06

FRACTURES (MATERIALS)
Failure in glass
AEC-10088 B72-10364 04

FRACTURING
Weight simulator
ARC-10100 B72-10046 05

Planetary rock corer and drill concepts
NPO-11416 B72-10398 07

FREQUENCY MODULATION

FRAMES
Thermally stable structural framework
ARC-10612 B72-10252 08

Filter cassette for high volume air sampler
LEWIS-11469 B72-10379 03

FREE FLOW
A stagnation pressure probe for use in supersonic flow
LANGLEY-11139 B72-10543 06

FREE RADICALS
Free-radical solution-polymerization of trifluoronitrosomethane with tetrafluoroethylene
ARC-10567 B72-10419 04

FREEZING
Quick, easy to prepare freeze-dried soups
MSC-14003 B72-10017 05

Improved synthesis of intermetal compounds
HQ-10690 B72-10172 04

Restartable heat pipe
ARC-10198 B72-10188 03

FREON
Safe transport of diborane in a dual refrigerant system: A concept
ARC-10559 B72-10277 03

Leaching of nitroso rubber material removes uncured polymer
MSC-17185 B72-10449 04

Freon 21 bearing lubrication and coolant system
HQ-10302 B72-10651 06

FREQUENCIES
Piezoelectric transducer mosaic
ARC-10509 B72-10014 01

A study of the power spectral density of an FM signal
M-FS-21070 B72-10361 02

Frequency-wavelength calculator with table of dielectric properties
GSFC-11200 B72-10472 03

FREQUENCY ANALYZERS
Lightweight, broad-band spectrum analyzer
ARC-10405 B72-10060 01

FREQUENCY CONTROL
Microresonator for damping flow oscillations
M-FS-18401 B72-10105 06

Broadband RF-distribution amplifier
NPO-11401 B72-10245 01

Acousto-optic filter for electronic laser tuning
HQ-10715 B72-10520 03

FREQUENCY CONVERTERS
Frequency-to-amplitude converter: A concept
MSC-12395 B72-10729 01

FREQUENCY DISTRIBUTION
Program for standard statistical distributions
M-FS-21466 B72-10602 09

FREQUENCY MEASUREMENT
A sonic transducer to detect fluid leaks
KSC-10704 B72-10376 01

FREQUENCY MODULATION
Improved audio reproduction system
ARC-10404 B72-10059 01

Narrowband, crystal-controlled biomedical telemetry system
ARC-10708 B72-10255 01

An ingestible temperature-transmitter
ARC-10583 B72-10275 01

FREQUENCY RANGES

- A study of the power spectral density of an FM signal
M-FS-21070 872-10361 02
- Laser frequency modulation with electron plasma
AEC-10079 872-10373 03
- Diode-quad bridge for reactive transducers and FM discriminators
ARC-10364 872-10691 01
- ### FREQUENCY RANGES
- Selecting digital filters
M-FS-20933 872-10156 01
- Prediction of flow-induced failures of braided flexible hoses and bellows
M-FS-19004 872-10407 06
- ### FREQUENCY RESPONSE
- Selecting digital filters
M-FS-20933 872-10156 01
- Low frequency sinusoidal pressure generator
LEWIS-11465 872-10477 01
- Universal dc signal conditioner
MSC-17526 872-10510 02
- Computer method for identification of boiler transfer functions
LEWIS-11808 872-10582 09
- Response of a panel structure to reverberant acoustic excitation
M-FS-21774 872-10603 06
- ### FREQUENCY STABILITY
- Crystal-controlled multivibrator
NPO-11627 872-10155 01
- Enhanced Lamb dip for absolute laser frequency stabilization
HQ-10695 872-10481 02
- ### FRICTION
- Joining precipitation-hardened nickel-base alloys by friction welding
LEWIS-11514 872-10288 08
- Latch mechanism
M-FS-21606 872-10457 08
- ### FRICTION FACTOR
- Vortex servovalve for fluidic or electrical input
ARC-10155 872-10173 07
- ### FRICTION REDUCTION
- Low-friction ball-and-socket
NPO-11348 872-10081 08
- New full-complement ball bearing lubrication technique
MSC-13850 872-10174 07
- Ball bearing protector
M-FS-21612 872-10322 07
- Stem clutch for motor driven valve
LRL-10032 872-10345 07
- Polyimide, bonded graphite fluoride: A new long life solid lubricant coating
LEWIS-11864 872-10628 04
- ### FUEL CELLS
- Silver-chlorine fuel cell: A concept
ARC-10491 872-10221 03
- Improved operation of rechargeable oxygen electrodes
LEWIS-11619 872-10479 01
- Propulsion sizing program
MSC-14016 872-10605 09
- Optimization of fluid line sizes with pumping power penalty IBM-360 computer program
MSC-17930 872-10722 06
- ### FUEL COMBUSTION
- Carbon monoxide oxidation rates computed for automobile thermal reactor conditions
LEWIS-11638 872-10137 04

- Fluidized-bed combustion reduces atmospheric pollutants
AEC-10085 872-10431 04
- ### FUEL CONSUMPTION
- Optimized braking of landing vehicles with atmospheric drag
NPO-11402 872-10084 06
- Fluidic systems may improve combustion in automotive engines
ARC-10582 872-10250 06
- Air assist fuel nozzle reduces aircraft gas turbine engine emissions at idle operation
LEWIS-11512 872-10434 07
- ### FUEL CONTROL
- Prolate spheroidal slosh model for fluid motion
MSC-13864 872-10182 09
- ### FUEL INJECTION
- Main tank injection pressurization program
LEWIS-11368 872-10069 09
- ### FUEL SYSTEMS
- Electrodynamic actuators for rocket engine valves
ARC-10486 872-10009 06
- Carbon monoxide oxidation rates computed for automobile thermal reactor conditions
LEWIS-11638 872-10137 04
- Fill and vent quick disconnect
M-FS-21822 872-10645 07
- Propellant feed systems transients
MSC-17848 872-10677 06
- ### FUEL TANK PRESSURIZATION
- Main tank injection pressurization program
LEWIS-11368 872-10069 09
- Fluidic pressure regulators
ARC-10474 872-10162 06
- Thermal control for storage of cryogenic propellants in a common-bulkhead tank: A concept
ARC-10558 872-10276 03
- Safe transport of diborane in a dual refrigerant system: A concept
ARC-10559 872-10277 03
- Liquid methane gelled with methanol and water reduces rate of nitrogen absorption
LEWIS-11574 872-10330 06
- ### FUEL TANKS
- Thermally resistant polymers for fuel tank sealants
M-FS-21232 872-10358 04
- Internal capillary insulation for cryogenic tanks
LEWIS-11234 872-10626 06
- ### FUEL VALVES
- Electrodynamic actuators for rocket engine valves
ARC-10486 872-10009 06
- Hermetic isolation valves
ARC-10505 872-10013 06
- Zero-leakage valves
ARC-10506 872-10024 06
- ### FUNCTIONS (MATHEMATICS)
- Optimization technique for problems with an inequality constraint
ARC-10522 872-10222 09
- Computer program draws three-dimensional surfaces
LEWIS-10482 872-10253 09
- ### FURNACES
- Improved synthesis of intermetal compounds
HQ-10690 872-10172 04

SUBJECT INDEX

- Simple, reproducible methods for thermal shock testing of brittle materials
NUC-11020 872-10228 06
- ### FUSES
- New meter probes provide protection from high current power sources at potentials up to 600 volts
LANGLEY-10804 872-10455 01

G

- ### GADOLINIUM
- Improved intensifying screen reduces X-ray exposure
AEC-10090 872-10232 03
- Boron-10 loaded inorganic shielding material
M-FS-22280 872-10740 04
- ### GALACTIC RADIATION
- A study of radiation environment in space and its biological effects
HQ-10798 872-10662 03
- ### GALLIUM ARSENIDES
- Advanced infrared photomultiplier
M-FS-20941 872-10152 03
- Improved synthesis of intermetal compounds
HQ-10690 872-10172 04
- A voltage-tunable three-terminal Gunn device
HQ-10783 872-10518 01
- ### GALLIUM PHOSPHIDES
- Improved synthesis of intermetal compounds
HQ-10690 872-10172 04
- High temperature gallium phosphide rectifiers
LEWIS-11804 872-10673 01
- ### GAMMA RAYS
- A Compton scatter attenuation gamma ray spectrometer
M-FS-21441 872-10487 03
- Fast response densitometer for measuring liquid density
M-FS-14478 872-10664 02
- Irradiation of MOS-FET devices to provide desired logic functions
GSFC-11061 872-10719 01
- ### GARMENTS
- Improved temperature control of liquid cooling garments
MSC-13917 872-10281 05
- ### GAS ANALYSIS
- Oxygen carrier for gas chromatographic analysis of inert gases in propellants
ARC-10574 872-10249 04
- An improved gas extraction furnace
MSC-14138 872-10544 04
- ### GAS BEARINGS
- High speed, self-acting, face-contact shaft seal has low leakage and very low wear
LEWIS-11598 872-10114 07
- Sputter etching of hemispherical bearings
HQ-10712 872-10534 08
- ### GAS CHROMATOGRAPHY
- Simple gas chromatographic system for analysis of microbial respiratory gases
ARC-10403 872-10207 03
- Direct analysis of hydrogen/deuterium mixtures: A concept
NPO-11322 872-10244 03

SUBJECT INDEX

GAS STREAMS

Oxygen carrier for gas chromatographic analysis of inert gases in propellants
 ARC-10574 B72-10249 04

Microminiature gas chromatographic column
 ARC-10594 B72-10306 04

Chemical modification of poly(p-phenylene) for use in ablative compositions
 ARC-10135 B72-10451 04

Gas-flow restrictor
 NPO-10117 B72-10703 03

Transonic divider for gas chromatograph effluents
 NPO-11479 B72-10706 03

GAS COMPOSITION
 An absorption spectrum amplifier for determining gas composition
 HQ-10752 B72-10524 03

An improved gas extraction furnace
 MSC-14138 B72-10544 04

GAS COOLING
 Freon 21 bearing lubrication and coolant system
 HQ-10302 B72-10651 06

GAS DENSITY
 Sensitive holographic detection of small aerodynamic perturbations
 ARC-10422 B72-10209 03

Accurate measurement of gas volumes by liquid displacement
 ARC-10723 B72-10699 03

GAS DETECTORS
 Gas leak-detection system
 NPO-11405 B72-10087 03

Laboratory leak tester provides high sensitivity
 AEC-10042 B72-10240 03

Oxygen carrier for gas chromatographic analysis of inert gases in propellants
 ARC-10574 B72-10249 04

Helium leak measurements using CO₂ as a carrier
 M-FS-21742 B72-10354 03

GAS DISCHARGES
 Properties of ionization breakdown of air at microwave frequencies and optimization of component dimensions for maximum microwave power
 M-FS-21924 B72-10316 01

Ion plating seals microcracks on porous metal components
 LEWIS-11657 B72-10397 04

High-intensity source of extreme ultraviolet
 HQ-10754 B72-10528 03

GAS DYNAMICS
 Water cavity degasser for electrolysis cells
 ARC-10244 B72-10246 03

GAS EVOLUTION
 Devolatilization of polymer resins
 GSFC-11358 B72-10280 04

GAS FLOW
 Pressure sensitive gas flow meter
 ARC-10219 B72-10049 06

Dynamic valve to supply constant total thrust to two orifice jets
 ARC-10239 B72-10120 07

Micro regulating ball valve
 ARC-10295 B72-10121 06

Positive fast sealing union connections
 LEWIS-11290 B72-10133 06

Advances in induction-heated plasma torch technology
 LEWIS-11354 B72-10151 03

Closed-cycle power supply for fluidic control systems
 ARC-10480 B72-10163 06

Vortex servovalve for fluidic or electrical input
 ARC-10155 B72-10173 07

Miniature high pressure regulator
 ARC-10428 B72-10211 07

Continuous monitor for gas ratios in a mixture
 LEWIS-11095 B72-10229 05

Flow equation for porous plug and capillary tube flow restrictors
 GSFC-11387 B72-10289 06

Optical enhancement of sensitivity in laser Doppler velocity systems
 ARC-10653 B72-10310 03

A sonic transducer to detect fluid leaks
 KSC-10704 B72-10376 01

Controlled flow assembly
 M-FS-21716 B72-10404 07

Regenerable metallic oxide systems for removal of carbon dioxide: A concept
 ARC-10570 B72-10420 04

Investigations of a turbulent jet in a crossflow
 LEWIS-11680 B72-10437 06

Combination pressure regulator and safety valve: A Concept
 MSC-14088 B72-10446 06

Integrated monopropellant thruster
 NPO-12004 B72-10502 06

Probe measures gas and liquid mass flux in high mass flow ratio two-phase flows
 LEWIS-11270 B72-10546 06

Hydrophobic liquid/gas separator for heat pipes
 ARC-10656 B72-10549 03

Chemical kinetics computer program for static and flow reactions
 LEWIS-11467 B72-10580 04

Accurate measurement of gas volumes by liquid displacement
 ARC-10723 B72-10699 03

Gas-flow restrictor
 NPO-10117 B72-10703 03

Transonic divider for gas chromatograph effluents
 NPO-11479 B72-10706 03

GAS GENERATORS
 Propellant-powered actuator for gas generators
 ARC-10484 B72-10008 03

Investigations of a turbulent jet in a crossflow
 LEWIS-11680 B72-10437 06

GAS HEATING
 Pulsed high-power arc heater with improved cathode and triggering mechanism
 ARC-10173 B72-10048 03

GAS INJECTION
 Remote control flare stack igniter for combustible gases
 M-FS-21675 B72-10352 07

GAS IONIZATION
 Properties of ionization breakdown of air at microwave frequencies and optimization of component dimensions for maximum microwave power
 M-FS-21924 B72-10316 01

Novel dielectric reduces corona breakdown in ac capacitors
 M-FS-21486 B72-10505 01

GAS JETS
 Wide angle solar sensor
 NPO-11341 B72-10080 01

Dynamic valve to supply constant total thrust to two orifice jets
 ARC-10239 B72-10120 07

GAS LASERS
 Diatomic infrared gasdynamic laser permits selection of wavelengths
 ARC-10370 B72-10206 03

Enhanced Lamb dip for absolute laser frequency stabilization
 HQ-10695 B72-10481 02

GAS MASERS
 Mechanically and thermally stable maser cavity resonator
 HQ-10790 B72-10523 01

A method of eliminating hydrogen maser wall shift
 HQ-10663 B72-10670 03

GAS MIXTURES
 Nondispersive infrared analyzer for specific gases in complex mixtures
 ARC-10308 B72-10198 03

Comparison of catalyst activity
 ARC-10493 B72-10201 04

Continuous monitor for gas ratios in a mixture
 LEWIS-11095 B72-10229 05

Water cavity degasser for electrolysis cells
 ARC-10244 B72-10246 03

Separation of gas mixtures by centrifugation
 ARC-10449 B72-10270 03

Chemical kinetics computer program for static and flow reactions
 LEWIS-11467 B72-10580 04

Computation of laminar heat transfer from gaseous plasmas in electromagnetic fields
 NPO-11725 B72-10707 03

Reduction of noise in gyro outputs
 NPO-11603 B72-10743 06

GAS PIPES
 Positive fast sealing union connections
 LEWIS-11290 B72-10133 06

GAS PRESSURE
 Pressure sensitive gas flow meter
 ARC-10219 B72-10049 06

Fluidic pressure regulators
 ARC-10474 B72-10162 06

Improved synthesis of intermetal compounds
 HQ-10690 B72-10172 04

Two-stage coaxial gas compressor
 ARC-10426 B72-10210 06

Miniature high pressure regulator
 ARC-10428 B72-10211 07

Study of in-situ degradation of thermal control surfaces
 M-FS-20892 B72-10336 04

High-volume pressure relief valve
 KSC-10707 B72-10536 07

Probe measures gas and liquid mass flux in high mass flow ratio two-phase flows
 LEWIS-11270 B72-10546 06

GAS SPECTROSCOPY
 Leak decay method of helium bombardment leak testing
 M-FS-24109 B72-10381 06

GAS STREAMS
 Turbulent mixing film cooling correlation
 LEWIS-11417 B72-10326 07

- Oscillating hot-wire anemometer
NPO-11634 B72-10609 02
A multielement probe for coincident temperature and pressure measurements
LEWIS-11775 B72-10716 06
- GAS TEMPERATURE**
Main tank injection pressurization program
LEWIS-11368 B72-10069 09
High speed, self-acting, face-contact shaft seal has low leakage and very low wear
LEWIS-11598 B72-10114 07
Method of determining thermal conductivity in multi-layer insulation systems
M-FS-20213 B72-10154 03
Hydrogen eliminator
ARC-10408 B72-10208 03
Turbulent mixing film cooling correlation
LEWIS-11417 B72-10326 07
Computer program for calculating the temperature field of face seals
LEWIS-11110 B72-10483 09
- GAS TUBES**
Cathode for use with low density gases
HQ-10687 B72-10530 01
- GAS TURBINE ENGINES**
High speed, self-acting, face-contact shaft seal has low leakage and very low wear
LEWIS-11598 B72-10114 07
Airflow distribution control for improved turbine engine performance
LEWIS-11593 B72-10178 07
Computer program for calculating the temperature field of face seals
LEWIS-11110 B72-10483 09
- GAS TURBINES**
Turbulent mixing film cooling correlation
LEWIS-11417 B72-10326 07
FORTRAN program for computing coordinates of circular-arc, single and tandem, turbine and compressor, blade sections on a plane
LEWIS-11237 B72-10405 09
- GAS VALVES**
Hermetic isolation valves
ARC-10505 B72-10013 06
Dynamic valve to supply constant total thrust to two orifice jets
ARC-10239 B72-10120 07
Micro regulating ball valve
ARC-10295 B72-10121 06
Laboratory leak tester provides high sensitivity
AEC-10042 B72-10240 03
High-volume pressure relief valve
KSC-10707 B72-10536 07
- GAS-GAS INTERACTIONS**
Space-suit carbon dioxide absorption system: A concept
ARC-10546 B72-10168 05
- GAS-LIQUID INTERACTIONS**
Water cavity degasser for electrolysis cells
ARC-10244 B72-10246 03
- GAS-METAL INTERACTIONS**
Regenerable metallic oxide systems for removal of carbon dioxide: A concept
ARC-10570 B72-10420 04
- GASES**
High-temperature, long-life thyatron
LEWIS-11327 B72-10134 01
- Continuous monitor for gas ratios in a mixture
LEWIS-11095 B72-10229 05
Remote control flare stack igniter for combustible gases
M-FS-21675 B72-10352 07
Evaluating foam heterogeneity
AEC-10046 B72-10365 04
Noncontaminating technique for making holes in existing process systems
LEWIS-11595 B72-10385 07
Nonmetallic impurities improve mechanical properties of vapor-deposited tungsten
LEWIS-10800 B72-10454 04
Low frequency sinusoidal pressure generator
LEWIS-11465 B72-10477 01
Novel dielectric reduces corona breakdown in ac capacitors
M-FS-21486 B72-10505 01
Improved sampling of compressed gases for condensable hydrocarbon content
KSC-10304 B72-10540 06
Hydrophobic liquid/gas separator for heat pipes
ARC-10656 B72-10549 03
Fluid operated quick release mechanism
M-FS-20205 B72-10640 07
- GASKETS**
Preventing oil migration in vacuum systems
GSFC-11253 B72-10129 04
Filter cassette for high volume air sampler
LEWIS-11469 B72-10379 03
- GASTROINTESTINAL SYSTEM**
Sensor capsule for diagnosis of gastric disorders
HQ-10767 B72-10531 05
- GATES (CIRCUITS)**
Improved device measures performance of batteries under load
ARC-10252 B72-10051 02
A differential ECG amplifier with single-ended output
ARC-10411 B72-10061 05
Voltage-tunable parallel-T filter for remote operation
NPO-11165 B72-10077 01
Control of acceleration in sine/random vibration tests
NPO-11482 B72-10091 02
Stable photosensor amplifiers
NPO-11561 B72-10100 01
Time-lapse camera for microscopy
ARC-10423 B72-10125 05
Gate protective device for insulated gate field-effect transistors
M-FS-21626 B72-10149 01
A voltage-tunable three-terminal Gunn device
HQ-10783 B72-10518 01
Insulated-gate field-effect transistor strain sensor
LANGLEY-11012 B72-10731 01
- GE 635 COMPUTER**
Systems effectiveness evaluation program
HQ-10306 B72-10458 09
- GEAR TEETH**
Improved system for measuring speed of rotating machinery
ARC-10413 B72-10179 07
- GEARS**
Lubricant selection for gear designers
LEWIS-11483 B72-10136 04
Improved system for measuring speed of rotating machinery
ARC-10413 B72-10179 07
- GELATINS**
Stabilization of lactate dehydrogenase
ARC-10415 B72-10062 05
Halogenation of microcapsule walls
ARC-10410 B72-10161 04
An ingestible temperature-transmitter
ARC-10583 B72-10275 01
- GELATION**
Liquid methane gelled with methanol and water reduces rate of nitrogen absorption
LEWIS-11574 B72-10330 06
- GELLED PROPELLANTS**
Liquid methane gelled with methanol and water reduces rate of nitrogen absorption
LEWIS-11574 B72-10330 06
Electromagnetic rheometer
ARC-10525 B72-10416 04
- GELLED ROCKET PROPELLANTS**
Rising-plate rheometer
ARC-10524 B72-10026 03
Cryogenic gel flow viscometer
ARC-10523 B72-10180 03
- GEOCENTRIC COORDINATES**
Geometric field-line calculations
GSFC-11597 B72-10674 09
- GEOCHEMISTRY**
Remote sensing X-ray spectrometer
MSC-13978 B72-10016 03
- GEODESY**
Gravitational gradiometer measures mass changes
M-FS-20814 B72-10140 03
- GEODETTIC COORDINATES**
Geometric field-line calculations
GSFC-11597 B72-10674 09
- GEOLOGY**
Hand-held photomicroscopy system
ARC-10468 B72-10190 03
- GEOMETRY**
Algorithm for Liapunov stability analysis
ARC-10498 B72-10023 09
Increasing the response of PIN photodiodes to the ultraviolet
ARC-10274 B72-10053 03
Program for the transient response of ablating axisymmetric bodies including the effects of shape change
LANGLEY-11049 B72-10068 09
Optimization technique for problems with an inequality constraint
ARC-10522 B72-10222 09
- GERMANIUM**
A reliable liquid helium detector
LEWIS-11487 B72-10145 01
Overlap diffusion for increasing phototransistor dynamic range
M-FS-20407 B72-10347 01
- GIMBALS**
Improved high-temperature gimbal joint
LEWIS-11705 B72-10489 06
Computer program to generate attitude error equations for a gimballed platform
M-FS-21991 B72-10624 09
Reduction of noise in gyro outputs
NPO-11603 B72-10743 06

GLASS

- Nematic liquid crystals for optical shutters: A concept
NPO-11367 B72-10083 03
- Glass technology involved in the manufacture of magnetometer components
GSFC-11283 B72-10132 03
- Interferometric rotation sensor
ARC-10278 B72-10274 03
- Stabilization of porous glass reverse-osmosis membranes
ARC-10646 B72-10309 04
- Inorganic glass ceramic slip rings
M-FS-20711 B72-10313 04
- Nonflammable potting, encapsulating and/or conformal coating compound
MSC-13499 B72-10337 04
- Failure in glass
AEC-10088 B72-10364 04
- An improved apochromatic wedge utilizing optical molecular contact bonding
GSFC-11082 B72-10388 03
- Purification of contaminated water by filtration through porous glass
ARC-10655 B72-10412 04
- Radiation-induced nickel deposits
LEWIS-10965 B72-10456 04
- Mechanically and thermally stable maser cavity resonator
HQ-10790 B72-10523 01
- GLASS COATINGS**
High voltage electrical insulation coating for refractory materials
LEWIS-11479 B72-10290 04
- GLASS FIBERS**
New polyimide polymer has excellent processing characteristics with improved thermo-oxidative and hydrolytic stabilities
LEWIS-11323 B72-10175 04
- Adhesive for aluminum withstands cryogenic temperatures
M-FS-16848 B72-10346 04
- Nonflammable and abrasion resistant coating process for glass fibers
MSC-14024 B72-10445 08
- Built-in bleeder system in laminated plastic structures
MSC-17713 B72-10562 08
- Internal capillary insulation for cryogenic tanks
LEWIS-11234 B72-10626 06
- GLOVES**
Convuluted fabric for full-pressure gloves
ARC-10529 B72-10215 04
- GLOW DISCHARGES**
Polymeric coatings using electronic excitation
HQ-10698 B72-10257 04
- Baffle to confine glow discharge in ion pump
M-FS-21575 B72-10324 03
- Ion plating seals microcracks or porous metal components
LEWIS-11657 B72-10397 04
- GLUCOSE**
Immobilized phosphorylase for synthesis of polysaccharides from glucose
ARC-10680 B72-10550 04
- GLYCEROLS**
Stabilization of lactate dehydrogenase
ARC-10415 B72-10062 05
- Fire retardant polyisocyanurate foam
ARC-10280 B72-10269 04

GOLAY DETECTOR CELLS

- Vibrating ribbon bolometer: A concept
XAC-10768 B72-10170 03
- GOLD**
Magnetic-doped alloys with very large Seebeck coefficients
M-FS-21410 B72-10318 04
- Humidity resistant solar cell contacts
HQ-10674 B72-10517 04
- Thin-film ultraviolet detector and spectrometer
NPO-11432 B72-10701 03
- Boron-10 loaded inorganic shielding material
M-FS-22280 B72-10740 04
- GOLD ALLOYS**
Strain gage attachment by spot welding reduces the fatigue strength of Ti-6Al-4V, Rene 41, and Inconel X
LANGLEY-10930 B72-10339 04
- GRADIENTS**
Introduction of lithium into the front surface of solar cells
NPO-11404 B72-10086 02
- GRAND TOURS**
Radioisotope thermionic power supply for spacecraft
ARC-10438 B72-10212 03
- GRANULAR MATERIALS**
Low temperature catalytic ignition of hydrogen and oxygen
ARC-10492 B72-10127 03
- GRAPHIC ARTS**
Radiation-induced nickel deposits
LEWIS-10965 B72-10456 04
- GRAPHITE**
Electrodes for sealed secondary batteries
ARC-10238 B72-10050 02
- Structural design and stress analysis program for advanced composite filament-wound axisymmetric pressure vessels (COMTANK)
NPO-11943 B72-10073 09
- Nondestructive-test standards for evaluation of fiber-reinforced composites
M-FS-21288 B72-10157 04
- Fabrication of large ceramic electrolyte disks
ARC-10320 B72-10202 03
- Repeatable method of thermal stress fracture test of brittle materials
NUC-11019 B72-10258 06
- Graphite and boron-reinforced composite materials data summary
M-FS-21691 B72-10294 04
- Inorganic glass ceramic slip rings
M-FS-20711 B72-10313 04
- Titanium reinforced boron polyimide composite
M-FS-21916 B72-10353 04
- Research on bearing lubricants for use in a high vacuum
M-FS-22119 B72-10469 04
- Fabrication of cooled, graphite-lined structures
LEWIS-11741 B72-10593 08
- Polyimide bonded graphite fluoride: A new long life solid lubricant coating
LEWIS-11864 B72-10628 04
- GRAPHS (CHARTS)**
Rising-plate rheometer
ARC-10524 B72-10026 03
- Graph for locked rotor current
MSC-15703 B72-10075 06

- A method for calculating the effects of design errors and measurement errors on pump performance
LEWIS-11503 B72-10292 07
- The design of an automated verification of redundant systems
KSC-10702 B72-10295 02
- Insulating effectiveness of self-spacing dimpled foil
LEWIS-10941 B72-10406 04
- GRATINGS (SPECTRA)**
Redirecting electromagnetic beams through wide angles
ARC-10602 B72-10307 03
- Efficient wire-grid duplexer-polarized for CO2 lasers
GSFC-11403 B72-10440 03
- GRAVITATIONAL EFFECTS**
Cine recording ophthalmoscope
ARC-10399 B72-10189 05
- GRAVITATIONAL FIELDS**
Gravitational gradiometer measures mass changes
M-FS-20814 B72-10140 03
- Water cavity degasser for electrolysis cells
ARC-10244 B72-10246 03
- GRAVITY GRADIOMETERS**
Improved laboratory gradiometer can be a field survey instrument
MSC-13980 B72-10001 03
- Gravitational gradiometer measures mass changes
M-FS-20814 B72-10140 03
- GRAVITY WAVES**
Atmospheric density variations related to internal gravity waves
M-FS-21637 B72-10143 03
- GREEN FUNCTION**
High efficiency collector for microwave tubes
LEWIS-11192 B72-10259 03
- GRIDS**
Wide-range dynamic pressure sensor
ARC-10263 B72-10196 03
- Isogrid structure
M-FS-21567 B72-10323 06
- GRINDING (MATERIAL REMOVAL)**
Machine finishes balls to high degree of roundness
M-FS-21448 B72-10595 08
- GRINDING MACHINES**
Electro-chemical grinding
LANGLEY-10801 B72-10744 08
- GROOVES**
Zero-leakage valves
ARC-10506 B72-10024 06
- Tubing cutter
NPO-11524 B72-10095 07
- Hydraulic valve lifter remover
M-FS-21377 B72-10110 07
- Dispersion ring reduces injector orifice-to-orifice flow variation
MSC-15953 B72-10117 07
- GROOVING**
Sputter etching of hemispherical bearings
HQ-10712 B72-10534 08
- GROUND CREWS**
Aircraft communication via telefacsimile system
M-FS-20839 B72-10139 02
- GROUND STATIONS**
Deep space network
NPO-11562 B72-10043 01

GROUND SUPPORT EQUIPMENT

SUBJECT INDEX

GROUND SUPPORT EQUIPMENT

- Aircrew oxygen system
ARC-10247 872-10195 05
- GROUND WATER**
Assessment of water pollution by
airborne measurement of chlorophyll
ARC-10648 872-10566 04
- GROUND-AIR-GROUND IONS**
Aircraft communication via telefacsimile
system
M-FS-20839 872-10139 02
- GROUP THEORY**
Optimizing designs of two-level factorial
experiments given partial prior information
(NAMER)
LEWIS-11708 872-10726 09
- GUARDS (SHIELDS)**
Overlay board for control consoles
ARC-10007 872-10191 02
- GUIDANCE (MOTION)**
A cable stabilizer for outdoor
elevators
KSC-10513 872-10283 07
- GUMS (SUBSTANCES)**
Free-radical solution-polymerization of
trifluoronitrosomethane with
tetrafluoroethylene
ARC-10567 872-10419 04
- GUNN EFFECT**
A voltage-tunable three-terminal Gunn
device
HQ-10783 872-10518 01
- GYROCOMPASSES**
A simple dead-reckoning navigational
system
M-FS-21165 872-10409 02
- GYROSCOPES**
Inertial reference unit
NPO-11518 872-10094 02
Electronic integrator for gyro rate output
voltages
NPO-11499 872-10555 01
Reduction of noise in gyro outputs
NPO-11603 872-10743 06

H

- HALIDES**
Al/C12 molten salt battery
HQ-10696 872-10527 01
- HALL EFFECT**
Beryllium thin films for resistor
applications
ARC-10485 872-10021 01
A brushless dc spin motor for momen-
tum exchange altitude control
M-FS-14952 872-10448 02
A magnetic mouse activity meter
HQ-10664 872-10482 05
- HALOGEN COMPOUNDS**
Halogenation of microcapsule walls
ARC-10410 872-10161 04
- HALOGENATION**
Halogenation of microcapsule walls
ARC-10410 872-10161 04
Chemical modification of poly(p-
phenylene) for use in ablative
compositions
ARC-10135 872-10451 04
- HAMMERS**
Planetary rock corer and drill concepts
NPO-11416 872-10398 07

HANDBOOKS

- Standard environmental testing
practices
NPO-11567 872-10101 02
- The design of an automated verification
of redundant systems
KSC-10702 872-10295 02
- Manufacturing contamination prevention
handbook
M-FS-19113 872-10394 08
- Radiological control manual
M-FS-22092 872-10460 03
- Phase-change materials handbook
M-FS-22064 872-10464 04
- Design criteria monograph on tur-
bopump inducers
LEWIS-11824 872-10635 08
- HANDLES**
A concept for universal pliers
KSC-10768 872-10685 07
- HARDNESS TESTS**
Common bearing material has highest
fatigue life at moderate temperature
LEWIS-11592 872-10382 04
Study of hot hardness characteristics
of tool steels
LEWIS-11785 872-10583 04
- HARDWARE**
Vise to hold bones or other irregular
objects
ARC-10679 872-10569 07
- HARMONIC FUNCTIONS**
Geometric field-line calculations
GSFC-11597 872-10674 09
- HARMONICS**
Hexapole magnet field analysis
GSFC-10995 872-10113 03
- HARNESSES**
Quick-donning backpack harness
LANGLEY-10102 872-10641 05
Seat belt restraint system
ARC-10519 872-10692 06
- HAZARDS**
New meter probes provide protection
from high current power sources at
potentials up to 600 volts
LANGLEY-10804 872-10455 01
Airlock caution and warning system
M-FS-21576 872-10467 02
- HEALTH**
An ingestible temperature-transmitter
ARC-10583 872-10275 01
- HEART**
Heart simulator
M-FS-21609 872-10131 02
Electronic circuit detects left ventricular
ejection events in cardiovascular system
LEWIS-11581 872-10512 05
- HEAT**
Restartable heat pipe
ARC-10198 872-10188 03
- HEAT BALANCE**
Hydrogen eliminator
ARC-10408 872-10208 03
- HEAT EXCHANGERS**
Effect of thermal discharges on the
mass energy balance of Lake Michigan
AEC-10013 872-10004 03
Restartable heat pipe
ARC-10198 872-10188 03
Thermal control for storage of cryogenic
propellants in a common-bulkhead tank:
A concept
ARC-10558 872-10276 03
A cryopump for cooling objects at a
distance
LRL-10031 872-10314 03

- Fabrication of cooled, graphite-lined
structures
LEWIS-11741 872-10593 08
- Thermal induced flow oscillations in
heat exchangers for supercritical fluids
M-FS-21262 872-10598 06
- Thermal-powered reciprocating pump
NPO-11417 872-10723 06
- Experimental study of flow distribution
with circumferential manifolds
LEWIS-11649 872-10738 06
- HEAT FLUX**
Variable boundary II heat conduction
LEWIS-10679 872-10444 09
Computation of laminar heat transfer
from gaseous plasmas in electromagnetic
fields
NPO-11725 872-10707 03
- HEAT MEASUREMENT**
Method of determining thermal conduc-
tivity in multi-layer insulation systems
M-FS-20213 872-10154 03
- HEAT OF DISSOCIATION**
Phosphonium chloride for thermal
storage
ARC-10572 872-10422 04
- HEAT PIPES**
Feedback control of variable conduct-
ance heat pipes
ARC-10460 872-10169 03
Restartable heat pipe
ARC-10198 872-10188 03
An electrohydrodynamic heat pipe
ARC-10601 872-10251 03
Sonic limitations and startup problems
of heat pipes
AEC-10036 872-10368 03
Hydrophobic liquid/gas separator for
heat pipes
ARC-10656 872-10549 03
- HEAT PUMPS**
Solar powered absorption cycle heat
pump using phase change materials for
energy storage
M-FS-21927 872-10615 06
- HEAT RADIATORS**
Radioisotope thermionic power supply
for spacecraft
ARC-10438 872-10212 03
Repeatable method of thermal stress
fracture test of brittle materials
NUC-11019 872-10258 06
- HEAT RESISTANT ALLOYS**
Advanced protective coating for
superalloys
LEWIS-11473 872-10150 04
Strain gage attachment by spot welding
reduces the fatigue strength of Ti-6Al-4V,
Rene 41, and Inconel X
LANGLEY-10930 872-10339 04
High strength alloy for immediate
temperature, 24 to 704 C (75 to 1300
F), applications
LEWIS-11634 872-10344 04
Advanced alloy design technique: High
temperature cobalt base superalloy
LEWIS-10436 872-10514 04
- HEAT SHIELDING**
Safe transport of diborane in a dual
refrigerant system: A concept
ARC-10559 872-10277 03
- HEAT SINKS**
Driver circuit for inductive loads
ARC-10073 872-10268 01
Sonic limitations and startup problems
of heat pipes
AEC-10036 872-10368 03

- Freon 21 bearing lubrication and coolant system
HQ-10302 B72-10651 06
- Thermal-powered reciprocating pump
NPO-11417 B72-10723 06
- HEAT SOURCES**
- Boiler for generating high quality vapor
LEWIS-11345 B72-10135 06
- Radioisotope thermionic power supply for spacecraft
ARC-10438 B72-10212 03
- Thermal analog device reduces machining errors
AEC-10080 B72-10237 08
- HEAT STORAGE**
- Phosphonium chloride for thermal storage
ARC-10572 B72-10422 04
- HEAT TRANSFER**
- Main tank injection pressurization program
LEWIS-11368 B72-10069 09
- Closed-cycle power supply for fluidic control systems
ARC-10480 B72-10163 06
- Restartable heat pipe
ARC-10198 B72-10188 03
- Thermal analog device reduces machining errors
AEC-10080 B72-10237 08
- An electrohydrodynamic heat pipe
ARC-10601 B72-10251 03
- Safe transport of diborane in a dual refrigerant system: A concept
ARC-10559 B72-10277 03
- Design curve for liquid helium storage vessels
LEWIS-11498 B72-10286 02
- Turbulent mixing film cooling correlation
LEWIS-11417 B72-10326 07
- Sonic limitations and startup problems of heat pipes
AEC-10036 B72-10368 03
- Survey of aircraft electrical power systems
LEWIS-11678 B72-10383 02
- Turbopump thermodynamic cooling
M-FS-21597 B72-10408 06
- Phosphonium chloride for thermal storage
ARC-10572 B72-10422 04
- Variable boundary II heat conduction
LEWIS-10679 B72-10444 09
- Thermal induced flow oscillations in heat exchangers for supercritical fluids
M-FS-21262 B72-10598 06
- Flexible thermal device
M-FS-21630 B72-10612 04
- Computer program for afterheat temperature distribution for mobile nuclear power plant
LEWIS-11693 B72-10634 09
- Heat transfer correlations for kerosene fuels and mixtures and physical properties for Jet A fuel
LEWIS-11652 B72-10742 04
- HEAT TRANSFER COEFFICIENTS**
- Promotion of dropwise condensation of ethyl alcohol, methyl alcohol, and acetone by polytetrafluoroethylene
LANGLEY-10940 B72-10115 04
- Boiler for generating high quality vapor
LEWIS-11345 B72-10135 06
- Improved thermally conducting electron transfer polymers
GSFC-11304 B72-10291 04
- HEAT TRANSMISSION**
- Composite casting demonstration
M-FS-21668 B72-10266 04
- Solar powered absorption cycle heat pump using phase change materials for energy storage
M-FS-21927 B72-10615 06
- Thermal-powered reciprocating pump
NPO-11417 B72-10723 06
- HEAT TREATMENT**
- Fabrication of large ceramic electrolyte disks
ARC-10320 B72-10202 03
- Plasma calcining of pigment particles for thermal control coatings
M-FS-21267 B72-10320 04
- High strength alloy for immediate temperature, 24 to 704 C (75 to 1300 F), applications
LEWIS-11634 B72-10344 04
- Low cost anti-galling bushings
LEWIS-11724 B72-10359 08
- High temperature permeameter for measuring magnetic properties
LEWIS-11609 B72-10443 03
- Advanced alloy design technique: High temperature cobalt base superalloy
LEWIS-10436 B72-10514 04
- HEATING**
- Improved synthesis of intermetal compounds
HQ-10690 B72-10172 04
- Restartable heat pipe
ARC-10198 B72-10188 03
- Fabrication of large ceramic electrolyte disks
ARC-10320 B72-10202 03
- Study of high altitude plume impingement
M-FS-21414 B72-10601 09
- HEATING EQUIPMENT**
- Preventing oil migration in vacuum systems
GSFC-11253 B72-10129 04
- Feedback control of variable conductance heat pipes
ARC-10460 B72-10169 03
- Superior cryogenic insulation developed
M-FS-21560 B72-10187 04
- An electrohydrodynamic heat pipe
ARC-10601 B72-10251 03
- A valve concept for remote fluid flow control
M-FS-16097 B72-10400 07
- Oxygen plasmas used to synthesize superoxides
ARC-10686 B72-10570 04
- Solar powered absorption cycle heat pump using phase change materials for energy storage
M-FS-21927 B72-10615 06
- HELICOPTERS**
- Dynamic valve to supply constant total thrust to two orifice jets
ARC-10239 B72-10120 07
- Effects of nonuniform swash-plate stiffness on coupled blade-control system dynamics and stability
LANGLEY-11068 B72-10749 06
- HELIUM**
- Low temperature catalytic ignition of hydrogen and oxygen
ARC-10492 B72-10127 03
- Fluidic ignition detection
M-FS-21498 B72-10158 06
- Cryogenic gel flow viscometer
ARC-10523 B72-10180 03
- Comparison of catalyst activity
ARC-10493 B72-10201 04
- Simple gas chromatographic system for analysis of microbial respiratory gases
ARC-10403 B72-10207 03
- Direct analysis of hydrogen/deuterium mixtures: A concept
NPO-11322 B72-10244 03
- Oxygen carrier for gas chromatographic analysis of inert gases in propellants
ARC-10574 B72-10249 04
- Separation of gas mixtures by centrifugation
ARC-10449 B72-10270 03
- A sensitive image intensifier which uses inert gas
LRL-10024 B72-10312 03
- Helium leak measurements using CO₂ as a carrier
M-FS-21742 B72-10354 03
- Leak decay method of helium bombardment leak testing
M-FS-24109 B72-10381 06
- Proposed semiconductor film improvement
HQ-10685 B72-10438 04
- Enhanced Lamb dip for absolute laser frequency stabilization
HQ-10695 B72-10481 02
- Temperature control of a cryogenic bath
HQ-10788 B72-10532 03
- Improved sampling of compressed gases for condensable hydrocarbon content
KSC-10304 B72-10540 06
- Helium window for shock-tube monochromators
NPO-11852 B72-10556 03
- HELIUM-NEON LASERS**
- Optical enhancement of sensitivity in laser Doppler velocity systems
ARC-10653 B72-10310 03
- HEMODYNAMIC RESPONSES**
- A system for automatic analysis of blood pressure data for digital computer entry
LEWIS-11751 B72-10632 05
- HEMODYNAMICS**
- Small, low cost, artificial kidney
AEC-10011 B72-10371 05
- HEMOGLOBIN**
- Ear oximeter-transducer monitors four physiological responses
XAC-05422 B72-10224 05
- HERMETIC SEALS**
- Hermetic isolation valves
ARC-10505 B72-10013 06
- Space suit may have orthotic applications
ARC-10275 B72-10297 05
- Properties of ionization breakdown of air at microwave frequencies and optimization of component dimensions for maximum microwave power
M-FS-21924 B72-10316 01
- Leak decay method of helium bombardment leak testing
M-FS-24109 B72-10381 06
- Improved lip seal for rotating shafts
LEWIS-11602 B72-10672 07
- High torque bellows seal rotary drive
LEWIS-11813 B72-10681 07

HETEROCYCLIC COMPOUNDS

Water purification by reverse osmosis using heterocyclic polymer membranes
LANGLEY-10514 B72-10230 04
 Fire retardant polyisocyanurate foam
ARC-10280 B72-10269 04

HETEROGENEITY

Evaluating foam heterogeneity
AEC-10046 B72-10365 04

HIGH ALTITUDE

Study of high altitude plume impingement
M-FS-21414 B72-10601 09

HIGH CURRENT

New meter probes provide protection from high current power sources at potentials up to 600 volts
LANGLEY-10804 B72-10455 01

HIGH ENERGY ELECTRONS

An empirical relationship for the penetration of 1 to 3 MeV electrons
LEWIS-11495 B72-10144 04

HIGH ENERGY INTERACTIONS

Removal of filler material from large high energy formed parts
M-FS-16326 B72-10104 06

HIGH FREQUENCIES

High noise immunity one shot
ARC-10137 B72-10047 01
 Coaxial inverted geometry epitaxial transistor
ARC-10330 B72-10056 01

HIGH GAIN

Temperature compensation of light-emitting diodes
ARC-10467 B72-10218 01

HIGH GRAVITY ENVIRONMENTS

Cine recording ophthalmoscope
ARC-10399 B72-10189 05

HIGH PRESSURE

Propellant-powered actuator for gas generators
ARC-10484 B72-10008 03
 Positive fast sealing union connections
LEWIS-11290 B72-10133 06
 Advances in induction-heated plasma torch technology
LEWIS-11354 B72-10151 03
 Wide-range dynamic pressure sensor
ARC-10263 B72-10196 03
 Determination of impact sensitivity of materials at high pressures
MSC-13700 B72-10216 07
 Turbopump radial and axial rotor support system
M-FS-21495 B72-10264 07
 Baffle to confine glow discharge in ion pump
M-FS-21575 B72-10324 03
 High-speed, self-acting shaft seal (circumferential type)
LEWIS-11274 B72-10447 07
 High-volume pressure relief valve
KSC-10707 B72-10536 07
 Improved sampling of compressed gases for condensable hydrocarbon content
KSC-10304 B72-10540 06
HIGH PRESSURE OXYGEN
 Water cavity degasser for electrolysis cells
ARC-10244 B72-10246 03
 Impact sensitivity of materials in contact with liquid and gaseous oxygen at high pressure
M-FS-21930 B72-10476 06

HIGH RESISTANCE

Time-adjusted variable resistor
NPO-11306 B72-10116 01

HIGH RESOLUTION

A liquid radiation detector with high spatial resolution
MSC-13965 B72-10034 03
 Projections of scan patterns on human retina
ARC-10181 B72-10193 05
 Optical device for producing color line scan display from monochrome oscilloscope traces
LANGLEY-10896 B72-10375 03
 Program to produce horizontal stereographic print maps from Nimbus HRIR data
GSFC-11397 B72-10606 09

HIGH SPEED

Optical shutter for use in shock tubes
ARC-10516 B72-10128 03
 Mislift and miss-drag programs
LANGLEY-10932 B72-10153 09

HIGH STRENGTH

Specimen for high-temperature tensile tests
ARC-10531 B72-10028 04
 High strength high modulus ceramic fiber
M-FS-21266 B72-10592 04

HIGH STRENGTH ALLOYS

High strength alloy for immediate temperature, 24 to 704 C (75 to 1300 F), applications
LEWIS-11634 B72-10344 04
 Dispersion-strengthened chromium alloy
LEWIS-10982 B72-10378 04

HIGH TEMPERATURE

Isotropic pyrolytic carbons
ARC-10532 B72-10029 04
 Aluminum foil interconnects for solar cell panels
ARC-10374 B72-10058 08
 Introduction of lithium into the front surface of solar cells
NPO-11404 B72-10086 02
 High-temperature ceramic-to-ceramic seals
ARC-10319 B72-10199 04
 Fabrication of large ceramic electrolyte disks
ARC-10320 B72-10202 03
 Development of a polyimide for use as a temperature and solvent resistant sealant
M-FS-21325 B72-10262 04
 Oxygen reclamation with solid oxide electrolytes
ARC-10487 B72-10273 03
 Devolatilization of polymer resins
GSFC-11358 B72-10280 04
 Inorganic glass ceramic slip rings
M-FS-20711 B72-10313 04
 Plasma calcining of pigment particles for thermal control coatings
M-FS-21267 B72-10320 04
 High strength alloy for immediate temperature, 24 to 704 C (75 to 1300 F), applications
LEWIS-11634 B72-10344 04
 Nonmetallic impurities improve mechanical properties of vapor-deposited tungsten
LEWIS-10800 B72-10454 04

Watertight low-cost electrical connector
LEWIS-11552 B72-10506 01
 High temperature gallium phosphide rectifiers
LEWIS-11804 B72-10673 01
HIGH TEMPERATURE ENVIRONMENTS
 High-temperature, long-life thyratron
LEWIS-11327 B72-10134 01
 Advances in induction-heated plasma torch technology
LEWIS-11354 B72-10151 03
 Improved method for producing metal-reinforced ceramics
AEC-10070 B72-10234 04
 High voltage electrical insulation coating for refractory materials
LEWIS-11479 B72-10290 04
 High temperature permeameter for measuring magnetic properties
LEWIS-11609 B72-10443 03
 Advanced alloy design technique: High temperature cobalt base superalloy
LEWIS-10436 B72-10514 04
 Fabrication of cooled, graphite-lined structures
LEWIS-11741 B72-10593 08
HIGH TEMPERATURE GASES
 Propellant-powered actuator for gas generators
ARC-10484 B72-10008 03
 Air assist fuel nozzle reduces aircraft gas turbine engine emissions at idle operation
LEWIS-11512 B72-10434 07
HIGH TEMPERATURE PLASMAS
 Computation of laminar heat transfer from gaseous plasmas in electromagnetic fields
NPO-11725 B72-10707 03
HIGH TEMPERATURE RESEARCH
 An improved gas extraction furnace
MSC-14138 B72-10544 04
 Oxygen plasmas used to synthesize superoxides
ARC-10686 B72-10570 04
HIGH TEMPERATURE TESTS
 Specimen for high-temperature tensile tests
ARC-10531 B72-10028 04
 New polyimide polymer has excellent processing characteristics with improved thermo-oxidative and hydrolytic stabilities
LEWIS-11323 B72-10175 04
 A protective coating for stainless steel
LEWIS-11267 B72-10256 04
 Thermally resistant polymers for fuel tank sealants
M-FS-21232 B72-10358 04
 Study of hot hardness characteristics of tool steels
LEWIS-11785 B72-10583 04
HIGH VACUUM
 Insulating effectiveness of self-spacing dimpled foil
LEWIS-10941 B72-10406 04
 Research on bearing lubricants for use in a high vacuum
M-FS-22119 B72-10469 04
HIGH VOLTAGES
 High voltage protection network
ARC-10197 B72-10119 02
 Improved high voltage insulator for use in vacuum
LEWIS-11401 B72-10181 01

SUBJECT INDEX

High voltage electrical insulation coating for refractory materials
LEWIS-11479 872-10290 04

New meter probes provide protection from high current power sources at potentials up to 600 volts
LANGLEY-10804 872-10455 01

High field CdS detector for infrared radiation
LANGLEY-11027 872-10725 04

HOLDERS
Vise to hold bones or other irregular objects
ARC-10679 872-10569 07

Tissue holder for experimental and Demonstration Surgery
LEWIS-11755 872-10630 05

A concept for universal pliers
KSC-10768 872-10685 07

HOLE DISTRIBUTION (MECHANICS)
Dispersion ring reduces injector orifice-to-orifice flow variation
MSC-15953 872-10117 07

Survey of information concerning large diameter deep hole drilling
AEC-10051 872-10238 08

HOLES
Noncontaminating technique for making holes in existing process systems
LEWIS-11595 872-10385 07

HOLOGRAPHY
Sensitive holographic detection of small aerodynamic perturbations
ARC-10422 872-10209 03

Hybrid holographic system
M-FS-20074 872-10260 03

Composite mobile system for holographic nondestructive testing
M-FS-21704 872-10351 03

Efficient wire-grid duplexer-polarized for CO₂ lasers
GSFC-11403 872-10440 03

Photoemissive coating
M-FS-22003 872-10638 08

Optimal read/write memory system components
M-FS-22044 872-10697 01

Erasable holographic medium using cis-transisomerization
M-FS-22062 872-10720 03

HOMEOSTASIS
Rapid evaluation of reverse-osmosis membranes
ARC-10659 872-10413 04

HOMOGENEITY
Fabrication of large ceramic electrolyte disks
ARC-10320 872-10202 03

HOMOGENIZING
Improved synthesis of intermetal compounds
HQ-10690 872-10172 04

HONEYCOMB CORES
Internal capillary insulation for cryogenic tanks
LEWIS-11234 872-10626 06

HORIZON
Compensating subreflector for two-reflector antennas: A concept
NPO-11503 872-10093 06

HORN ANTENNAS
Acoustic spectral analysis and testing techniques
NPO-11554 872-10341 03

HORNS
Acoustic spectral analysis and testing techniques
NPO-11554 872-10341 03

HOSES
Positive fast sealing union connections
LEWIS-11290 872-10133 06

Prediction of flow-induced failures of braided flexible hoses and bellows
M-FS-19004 872-10407 06

HOSPITALS
Hand-held photomicroscopy system
ARC-10468 872-10190 03

Ultrasonic bone densitometer
M-FS-20994 872-10450 05

HOT PRESSING
Dispersion-strengthened chromium alloy
LEWIS-10982 872-10378 04

HOT-WIRE ANEMOMETERS
Oscillating hot-wire anemometer
NPO-11634 872-10609 02

HOUSINGS
An improved aesthesiometer
MSC-13609 872-10032 05

Solenoid-operated swing-check valve
XAC-10048 872-10037 06

Increasing the response of PIN photodiodes to the ultraviolet
ARC-10274 872-10053 03

Low-friction ball-and-socket
NPO-11348 872-10081 08

Squib-actuated disconnect device
NPO-11544 872-10097 06

Hydraulic valve lifter remover
M-FS-21377 872-10110 07

HUBS
Compensating subreflector for two-reflector antennas: A concept
NPO-11503 872-10093 06

HUMAN BEINGS
Metabolic simulation chamber
HQ-10776 872-10658 05

An efficient prebreathing apparatus for humans during decompression
MSC-14151 872-10690 05

HUMAN BODY
Drive mechanism for production of simulated human breath
HQ-10777 872-10659 05

Temperature and humidity control of simulated human breath
HQ-10778 872-10660 05

Simulated breath waveform control
HQ-10779 872-10661 05

Implantable drug therapy device: A concept
NPO-11934 872-10708 05

Gate protective device for SOS array
HQ-10745 872-10755 01

HUMAN CENTRIFUGES
Cine recording ophthalmoscope
ARC-10399 872-10189 05

HUMAN FACTORS ENGINEERING
Space-suit carbon dioxide absorption system: A concept
ARC-10546 872-10168 05

Improved temperature control of liquid cooling garments
MSC-13917 872-10281 05

Tool carrier
M-FS-21469 872-10319 07

A continuous physiological data collector
M-FS-20835 872-10402 05

Restraint and locomotion aid
ARC-10153 872-10558 06

HYDRAULIC EQUIPMENT

A four-panel enclosure protects from explosion
M-FS-21847 872-10613 06

Automation of Bosch reaction for CO₂ reduction
M-FS-21674 872-10666 04

Seat belt restraint system
ARC-10519 872-10692 06

Improved electrodes for skin contacts
M-FS-21926 872-10698 05

Improved measurement of depth perception
M-FS-14133 872-10730 05

HUMAN PERFORMANCE
Simulated breath waveform control
HQ-10779 872-10661 05

Improved measurement of depth perception
M-FS-14133 872-10730 05

HUMAN REACTIONS
New reaction tester accurate within 56 microseconds
MSC-13604 872-10031 05

An improved aesthesiometer
MSC-13609 872-10032 05

Loudness (annoyance), prediction procedure for steady sounds
LEWIS-11761 872-10579 05

HUMAN TOLERANCES
A study of radiation environment in space and its biological effects
HQ-10798 872-10662 03

HUMAN WASTES
Small, low cost, artificial kidney
AEC-10011 872-10371 05

HUMIDITY
Cell for electrolysis of water vapor
ARC-10521 872-10166 03

Humidity resistant solar cell contacts
HQ-10674 872-10517 04

Breathing-metabolic simulator
HQ-10766 872-10657 05

Temperature and humidity control of simulated human breath
HQ-10778 872-10660 05

HYBRID COMPUTERS
Errors in hybrid computers
M-FS-21289 872-10141 02

An improved data transfer and storage technique for hybrid computation
M-FS-22043 872-10680 02

HYDRATION
Quick, easy to prepare freeze-dried soups
MSC-14003 872-10017 05

HYDRAULIC CONTROL
Gyro spring augmentation system
ARC-10496 872-10010 06

Integrated monopropellant thruster
NPO-12004 872-10502 06

HYDRAULIC EQUIPMENT
Gyro spring augmentation system
ARC-10496 872-10010 06

Hydraulic valve lifter remover
M-FS-21377 872-10110 07

Survey of aircraft electrical power systems
LEWIS-11678 872-10383 02

Dry ice plug for hydraulic and pneumatic pipe flushing
MSC-12548 872-10496 06

Self-aligning, low-pressure sealing poppet valve
MSC-17745 872-10538 07

High pressure liquid gas pump
MSC-14087 872-10590 06

Fill and vent quick disconnect
M-FS-21822 B72-10645 07
Automatic water inventory, collecting,
and dispensing unit
LANGLEY-11071 B72-10663 06
A shut-off valve for flexible tubing
M-FS-21731 B72-10687 07
Concentric-seating poppet
NPO-11658 B72-10704 06

HYDRAULIC FLUIDS
Gyro spring augmentation system
ARC-10496 B72-10010 06

HYDRAZINES
Propellant-powered actuator for gas
generators
ARC-10484 B72-10008 03
Fluidic pressure regulators
ARC-10474 B72-10162 06
Silver-chlorine fuel cell: A concept
ARC-10491 B72-10221 03

HYDROCARBONS
Carbon monoxide oxidation rates com-
puted for automobile thermal reactor
conditions
LEWIS-11638 B72-10137 04
Hydrogen eliminator
ARC-10408 B72-10208 03
Improved sampling of compressed
gases for condensable hydrocarbon
content
KSC-10304 B72-10540 06
New type of trifunctional alcohol
NPO-10714 B72-10553 04

HYDROCHLORIC ACID
Covalent bonding of antibodies of
polystyrene latex beads: A concept
MSC-13906 B72-10006 05

HYDRODYNAMIC EQUATIONS
Water impact loads
M-FS-21955 B72-10621 09

HYDRODYNAMICS
Design criteria monograph on tur-
bopump inducers
LEWIS-11824 B72-10635 08

HYDROFLUORIC ACID
Oxygen-layer structure improves lithium-
doped silicon solar cells
NPO-11403 B72-10085 03

HYDROGEN
Mass separator for low velocity ions
ARC-10375 B72-10123 03
Fluidic ignition detection
M-FS-21498 B72-10158 06
Cell for electrolysis of water vapor
ARC-10521 B72-10166 03
Aircrew oxygen system
ARC-10247 B72-10195 05
Comparison of catalyst activity
ARC-10493 B72-10201 04
Simple gas chromatographic system for
analysis of microbial respiratory gases
ARC-10403 B72-10207 03
Hydrogen eliminator
ARC-10408 B72-10208 03
Silver-chlorine fuel cell: A concept
ARC-10491 B72-10221 03
Nonmetallic impurities improve mechan-
ical properties of vapor-deposited
tungsten
LEWIS-10800 B72-10454 04
Mechanically and thermally stable mas-
er cavity resonator
HQ-10790 B72-10523 01
Propulsion sizing program
MSC-14016 B72-10605 09

A method of eliminating hydrogen
maser wall shift
HQ-10663 B72-10670 03

HYDROGEN BONDS
Adhesion theory review
AEC-10083 B72-10231 04

HYDROGEN COMPOUNDS
Low temperature catalytic ignition of
hydrogen and oxygen
ARC-10492 B72-10127 03
Direct analysis of hydrogen/deuterium
mixtures: A concept
NPO-11322 B72-10244 03

HYDROGEN IONS
Failure in glass
AEC-10088 B72-10364 04

HYDROLOGY
Assessment of water pollution by
airborne measurement of chlorophyll
ARC-10648 B72-10566 04

HYDROLYSIS
Oxygen carrier for gas chromatographic
analysis of inert gases in propellants
ARC-10574 B72-10249 04

HYDROSTATIC PRESSURE
Simple method for forming thin-wall
pressure vessels
ARC-10511 B72-10025 08
Rapid evaluation of reverse-osmosis
membranes
ARC-10659 B72-10413 04

HYDROSTATICS
New compression molding process of
thermosetting plastic compounds
LANGLEY-10782 B72-10356 08

HYDROXIDES
Initiation of polymerization by tetrabutyl-
lammonium p-lithiophenoxide
ARC-10553 B72-10223 04
Silver stain for electron microscopy
ARC-10661 B72-10415 05

HYDROXYL COMPOUNDS
Halogenation of microcapsule walls
ARC-10410 B72-10161 04
Carbon dioxide concentrator
ARC-10245 B72-10194 05
Fire retardant polyisocyanurate foam
ARC-10280 B72-10269 04
Failure in glass
AEC-10088 B72-10364 04
New type of trifunctional alcohol
NPO-10714 B72-10553 04

HYGROSCOPICITY
Rising-plate rheometer
ARC-10524 B72-10026 03
Cell for electrolysis of water vapor
ARC-10521 B72-10166 03

HYPERBOLIC FUNCTIONS
Cubic spline functions for curve fitting
LRL-10034 B72-10311 09
Acoustic spectral analysis and testing
techniques
NPO-11554 B72-10341 03

HYPERGOLIC ROCKET PROPELLANTS
Main tank injection pressurization
program
LEWIS-11368 B72-10069 09

HYPERSONIC AIRCRAFT
Electro-chemical grinding
LANGLEY-10801 B72-10744 08

HYPERSONIC SPEED
Continuous-flow variable-density wind
tunnel facilities
NPO-11287 B72-10078 06

HYPERVELOCITY WIND TUNNELS
Continuous-flow variable-density wind
tunnel facilities
NPO-11287 B72-10078 06

HYSTERESIS
Vortex servovalve for fluidic or electrical
input
ARC-10155 B72-10173 07

IBM COMPUTERS
Snap dynamics
M-FS-21531 B72-10265 09
Chemical kinetics computer program for
static and flow reactions
LEWIS-11467 B72-10580 04
Computer program for fitting low-order
polynomial splines by method of least
squares
LEWIS-11651 B72-10585 09
Computer program for afterheat tem-
perature distribution for mobile nuclear
power plant
LEWIS-11693 B72-10634 09

IBM 360 COMPUTER
Variable dimension automatic synthesis
programs (VASP)
ARC-10616 B72-10065 09
Program for determination of radiation
interchange factors
MSC-17563 B72-10071 09
Wind trajectory tracing for air pollution
studies (AIRPOL)
NPO-11892 B72-10072 09
Computer program draws three-
dimensional surfaces
LEWIS-10482 B72-10253 09
Rapid analysis of electric propulsion
missions
ARC-10430 B72-10299 09
Compensator design for low-sensitivity
linear time-invariant systems (COMPDES)
M-FS-21652 B72-10486 09
System/360 Computer Assisted Net-
work Scheduling (CANS) System
GSFC-10909 B72-10599 09
Significance arithmetic experimental
package (SIGPAC)
GSFC-11499 B72-10600 09
Interplanetary Trajectories, Encke Met-
hod (ITEM)
GSFC-11576 B72-10604 09
Program to produce horizontal ster-
eographic print maps from Nimbus HRIR
data
GSFC-11397 B72-10606 09
Two autowire versions for CDC-3200
and IBM-360
GSFC-11526 B72-10608 09
GPEDIT
GSFC-11308 B72-10620 09
FORTRAN manpower account program
NPO-11973 B72-10623 09
Computer program to generate attitude
error equations for a gimbaled platform
M-FS-21991 B72-10624 09
Program to reduce the size of structural
matrices
MSC-17619 B72-10625 09
Geometric field-line calculations
GSFC-11597 B72-10674 09

- Mathematical analysis for the performance assessment of space communication parameters, IBM-360 version
GSFC-11523 872-10675 09
- Propellant feed systems transients
MSC-17848 872-10677 06
- Optimization of fluid line sizes with pumping power penalty IBM-360 computer program
MSC-17930 872-10722 06
- Three bit mass spectral search program
NPO-11960 872-10747 09
- Final report on a study of low-density nozzle flows, with application to microthrust rockets
HQ-10761 872-10748 06
- IBM 7044 COMPUTER**
Design of two-dimensional sharp-edged-throat supersonic nozzle with boundary-layer correction
LEWIS-11636 872-10070 09
- Computer program draws three-dimensional surfaces
LEWIS-10482 872-10253 09
- IBM 7090 COMPUTER**
Variable dimension automatic synthesis programs (VASP)
ARC-10616 872-10065 09
- IBM 7094 COMPUTER**
Variable dimension automatic synthesis programs (VASP)
ARC-10616 872-10065 09
- Design of two-dimensional sharp-edged-throat supersonic nozzle with boundary-layer correction
LEWIS-11636 872-10070 09
- Program for calculating laminar and turbulent boundary layers in arbitrary pressure gradients
LEWIS-11097 872-10111 09
- Computer program draws three-dimensional surfaces
LEWIS-10482 872-10253 09
- Computer program for calculating the temperature field of face seals
LEWIS-11110 872-10483 09
- Computer programs for the design of liquid-to-liquid jet pumps
LEWIS-11679 872-10584 09
- Computer program for quasi-three-dimensional calculation of surface velocities and choking flow for turbomachine blade rows
LEWIS-11635 872-10586 09
- IDENTIFYING**
Nondispersive infrared analyzer for specific gases in complex mixtures
ARC-10308 872-10198 03
- A magnetic mouse activity meter
HQ-10664 872-10482 05
- IGNITERS**
Airflow distribution control for improved turbine engine performance
LEWIS-11593 872-10178 07
- Remote control flare stack igniter for combustible gases
M-FS-21675 872-10352 07
- Design criteria monograph on solid rocket motor igniters
LEWIS-11826 872-10715 06
- IGNITION**
Low temperature catalytic ignition of hydrogen and oxygen
ARC-10492 872-10127 03
- Fluidic ignition detection
M-FS-21498 872-10158 06
- Chemical kinetics computer program for static and flow reactions
LEWIS-11467 872-10580 04
- IGNITION SYSTEMS**
Design criteria monograph on solid rocket motor igniters
LEWIS-11826 872-10715 06
- IGNITION TEMPERATURE**
Controlled flow assembly
M-FS-21716 872-10404 07
- Impact sensitivity of materials in contact with liquid and gaseous oxygen at high pressure
M-FS-21930 872-10476 06
- ILLUMINATION**
Illumination control system
ARC-10527 872-10167 02
- Annular objective apertures improve resolution of electron microscopes
ARC-10448 872-10171 03
- Cine recording ophthalmoscope
ARC-10399 872-10189 05
- Hand-held photomicroscopy system
ARC-10468 872-10190 03
- Projections of scan patterns on human retina
ARC-10181 872-10193 05
- ILLUMINATORS**
Hybrid holographic system
M-FS-20074 872-10260 03
- IMAGE CONTRAST**
Annular objective apertures improve resolution of electron microscopes
ARC-10448 872-10171 03
- IMAGE DISSECTOR TUBES**
Interferometric rotation sensor
ARC-10278 872-10274 03
- IMAGE ENHANCEMENT**
A sensitive image intensifier which uses inert gas
LRL-10024 872-10312 03
- IMAGE FILTERS**
Visual sensitivity tester
ARC-10329 872-10203 05
- A dual-beam actinic light source for photosynthesis research
ARC-10351 872-10205 05
- IMAGE INTENSIFIERS**
Advanced infrared photomultiplier
M-FS-20941 872-10152 03
- A sensitive image intensifier which uses inert gas
LRL-10024 872-10312 03
- Neutron radiographic viewing system
M-FS-22024 872-10468 02
- IMAGE ORTHICONS**
Nematic liquid crystals for optical shutters: A concept
NPO-11367 872-10083 03
- IMAGE TUBES**
Solid state television camera has no imaging tube
M-FS-21553 872-10254 02
- IMAGES**
Piezoelectric transducer mosaic
ARC-10509 872-10014 01
- Optical alignment of electrodes on electrical discharge machines
XAC-09489 872-10036 07
- Hand-held photomicroscopy system
ARC-10468 872-10190 03
- IMAGING TECHNIQUES**
A liquid radiation detector with high spatial resolution
MSC-13965 872-10034 03
- Annular objective apertures improve resolution of electron microscopes
ARC-10448 872-10171 03
- IMMUNOLOGY**
Covalent bonding of antibodies of polystyrene latex beads: A concept
MSC-13906 872-10006 05
- IMPACT LOADS**
Water impact loads
M-FS-21955 872-10621 09
- IMPACT RESISTANCE**
Impact sensitivity of materials in contact with liquid and gaseous oxygen at high pressure
M-FS-21930 872-10476 06
- Equations to assess the impact resistance of fiber composites
LEWIS-11486 872-10503 04
- Energy absorbing system for mechanical impacts
NPO-10671 872-10712 06
- IMPACT TESTS**
Use of thin plastic films at cryogenic temperatures
LEWIS-11047 872-10038 04
- Velocity accelerator for particles
NPO-11349 872-10082 03
- Determination of impact sensitivity of materials at high pressures
MSC-13700 872-10216 07
- Impact sensitivity of materials in contact with liquid and gaseous oxygen at high pressure
M-FS-21930 872-10476 06
- Equations to assess the impact resistance of fiber composites
LEWIS-11486 872-10503 04
- IMPACTORS**
Planetary rock corer and drill concepts
NPO-11416 872-10398 07
- IMPEDANCE**
Stable photosensor amplifiers
NPO-11561 872-10100 01
- Low noise electromagnetic flowmeter
M-FS-21291 872-10108 02
- Differential input preamplifier
ARC-10489 872-10165 01
- Diode-quad bridge for reactive transducers and FM discriminators
ARC-10364 872-10691 01
- IMPELLERS**
Slot configuration for axial-flow turbomachinery blades
LEWIS-11572 872-10484 07
- IMPINGEMENT**
Study of high altitude plume impingement
M-FS-21414 872-10601 09
- IMPLANTATION**
Implanted telemeter for electrocardiogram and body temperature
XAC-08505 872-10035 05
- Implantable drug therapy device: A concept
NPO-11934 872-10708 05
- IMPREGNATING**
New polyimide polymer has excellent processing characteristics with improved thermo-oxidative and hydrolytic stabilities
LEWIS-11323 872-10175 04
- Improved method for producing metal-reinforced ceramics
AEC-10070 872-10234 04
- Novel dielectric reduces corona breakdown in ac capacitors
M-FS-21486 872-10505 01

IMPROVEMENT

No-err typing aids
M-FS-15218 872-10498 07

IMPURITIES

Nonmetallic impurities improve mechanical properties of vapor-deposited tungsten
LEWIS-10800 872-10454 04

IN-FLIGHT MONITORING

Software control for large scale on-board checkout: A concept
MSC-13977 872-10015 09

INCOMPRESSIBLE FLUIDS

Parallel-plate viscometer
NPO-11387 872-10700 03

INCONEL (TRADEMARK)

Strain gage attachment by spot welding reduces the fatigue strength of Ti-6Al-4V, Rene 41, and Inconel X
LANGLEY-10930 872-10339 04
Noncontaminating technique for making holes in existing process systems
LEWIS-11595 872-10385 07

INDEPENDENT VARIABLES

Speed enhancement of complementary MOS devices
ARC-10387 872-10184 01
Optimization technique for problems with an inequality constraint
ARC-10522 872-10222 09
Computer program draws three-dimensional surfaces
LEWIS-10482 872-10253 09
Optimizing designs of two-level factorial experiments given partial prior information (NAMER)
LEWIS-11708 872-10726 09

INDEXES

Indexing film with a fluidic sensor
MSC-14117 872-10501 02

INDEXES (DOCUMENTATION)

Program for creating an operating system generation cross reference index (SGINDEX)
GSFC-11612 872-10650 09

INDEXES (RATIOS)

Rising-plate rheometer,
ARC-10524 872-10026 03
Accurate measurement of telemetry performance
NPO-11457 872-10089 02
Sunspot analysis and prediction
M-FS-21724 872-10317 03

INDICATING INSTRUMENTS

New reaction tester accurate within 56 microseconds
MSC-13604 872-10031 05
A reliable liquid helium detector
LEWIS-11487 872-10145 01
Overlay board for control consoles
ARC-10007 872-10191 02
Lightning flash detection system
ARC-10562 872-10272 02
Improved temperature control of liquid cooling garments
MSC-13917 872-10281 05

INDUCTION HEATING

Advances in induction-heated plasma torch technology
LEWIS-11354 872-10151 03
Simple, reproducible methods for thermal shock testing of brittle materials
NUC-11020 872-10228 06
An improved gas extraction furnace
MSC-14138 872-10544 04

INDUCTORS

Driver circuit for inductive loads
ARC-10073 872-10268 01

INDUSTRIAL MANAGEMENT

Manufacturing contamination prevention handbook
M-FS-19113 872-10394 08

INDUSTRIAL PLANTS

A proposed remote manipulator system: A concept
MSC-14245 872-10733 06

INDUSTRIES

Survey of information concerning large diameter deep hole drilling
AEC-10051 872-10238 08
Manufacturing contamination prevention handbook
M-FS-19113 872-10394 08
Technical management techniques for identification and control of industrial safety and pollution hazards
M-FS-21883 872-10588 05

INEQUALITIES

Optimization technique for problems with an inequality constraint
ARC-10522 872-10222 09

INERT ATMOSPHERE

Polymeric coatings using electronic excitation
HQ-10698 872-10257 04

INERTIA

Two-stage coaxial gas compressor
ARC-10426 872-10210 06
Redirecting electromagnetic beams through wide angles
ARC-10602 872-10307 03
Seat belt restraint system
ARC-10519 872-10692 06

INERTIAL PLATFORMS

Precision machining of steel decahedrons
M-FS-21361 872-10597 07

INERTIAL REFERENCE SYSTEMS

Precision voltage regulator
NPO-11502 872-10092 01
Inertial reference unit
NPO-11518 872-10094 02

INFORMATION MANAGEMENT

Source deck compression and update program (CAPS)
GSFC-11545 872-10619 09

INFORMATION RETRIEVAL

Video information system
M-FS-21711 872-10267 09
Automatic computer subprogram selection from application-program libraries - ALTLIB
LANGLEY-11124 872-10607 09
Program for creating an operating system generation cross reference index (SGINDEX)
GSFC-11612 872-10650 09

INFORMATION SYSTEMS

Video information system
M-FS-21711 872-10267 09
Automatic computer subprogram selection from application-program libraries - ALTLIB
LANGLEY-11124 872-10607 09
Program for creating an operating system generation cross reference index (SGINDEX)
GSFC-11612 872-10650 09

INFORMATION THEORY

Compression and R-wave detection of ECG/VCG data
MSC-14126 872-10391 05

An improved learning decoder

MSC-14070 872-10573 02

INFRARED DETECTORS

Differential input preamplifier
ARC-10489 872-10165 01
Direct analysis of hydrogen/deuterium mixtures: A concept
NPO-11322 872-10244 03
Program to produce horizontal stereographic print maps from Nimbus HRIR data
GSFC-11397 872-10606 09
Improved transmittance measurement with a magnesium oxide coated integrating sphere
LEWIS-11840 872-10717 04
High field CdS detector for infrared radiation
LANGLEY-11027 872-10725 04

INFRARED INSPECTION

Nondestructive-test standards for evaluation of fiber-reinforced composites
M-FS-21288 872-10157 04

INFRARED INSTRUMENTS

Advanced infrared photomultiplier
M-FS-20941 872-10152 03

INFRARED RADIATION

Oxygen-layer structure improves lithium-doped silicon solar cells
NPO-11403 872-10085 03
Nondispersive infrared analyzer for specific gases in complex mixtures
ARC-10308 872-10198 03
Diatomic infrared gasdynamic laser permits selection of wavelengths
ARC-10370 872-10206 03
Unsupported thin film beam splitter
GSFC-10525 872-10471 02
High field CdS detector for infrared radiation
LANGLEY-11027 872-10725 04

INFRARED SPECTRA

Liquid-helium-cooled Michelson interferometer
ARC-10554 872-10217 03

INFRARED SPECTROPHOTOMETERS

Direct analysis of hydrogen/deuterium mixtures: A concept
NPO-11322 872-10244 03

INGESTION (BIOLOGY)

An ingestible temperature-transmitter
ARC-10583 872-10275 01

INITIATORS (EXPLOSIVES)

Simple non-destructive tests for electroexplosive devices
NPO-11563 872-10315 01

INJECTION

Advances in induction-heated plasma torch technology
LEWIS-11354 872-10151 03

INJECTORS

Main tank injection pressurization program
LEWIS-11368 872-10069 09
Dispersion ring reduces injector orifice-to-orifice flow variation
MSC-15953 872-10117 07
Remote control flare stack igniter for combustible gases
M-FS-21675 872-10352 07
Analysis and computer programs to calculate acoustic wave properties of baffled chambers
LEWIS-11529 872-10577 09

INLET FLOW

Miniature high pressure regulator
ARC-10428 872-10211 07

SUBJECT INDEX

INOCULATION

- Automatic agar tray inoculation device
LANGLEY-11074 B72-10637 05

INORGANIC COMPOUNDS

- Initiation of polymerization by tetrabutylammonium p-lithiophenoxide
ARC-10553 B72-10223 04

- Composite casting demonstration
M-FS-21668 B72-10266 04

INORGANIC PEROXIDES

- Oxygen plasmas used to synthesize superoxides
ARC-10686 B72-10570 04

INPUT

- Circuit permits independent adjustment of gain and offset at constant input impedance
ARC-10348 B72-10057 01

- A differential ECG amplifier with single-ended output
ARC-10411 B72-10061 05

- Snap dynamics
M-FS-21531 B72-10265 09

- Vidicon storage tube electrical input/output
MSC-14053 B72-10285 02

- Universal dc signal conditioner
MSC-17526 B72-10510 02

- An improved learning decoder
MSC-14070 B72-10573 02

- Program to reduce the size of structural matrices
MSC-17619 B72-10625 09

- FORTTRAN read package
MSC-14161 B72-10750 09

INPUT/OUTPUT ROUTINES

- Variable dimension automatic synthesis programs (VASP)
ARC-10616 B72-10065 09

- Standardization and qualification of computer programs for circuit design
M-FS-21537 B72-10142 09

- Systems effectiveness evaluation program
HQ-10306 B72-10458 09

- Computer program for fitting low-order polynomial splines by method of least squares
LEWIS-11651 B72-10585 09

- Redundant data management system
M-FS-21831 B72-10589 09

- GPEDIT
GSFC-11308 B72-10620 09

INSERTION

- A concept for universal pliers
KSC-10768 B72-10685 07

INSERTION LOSS

- A manually set magnetic wire counter
AEC-10039 B72-10369 01

INSULATED STRUCTURES

- Flexible shielding system for radiation protection
LRL-10028 B72-10500 03

INSULATION

- Electrical grounding bracket
ARC-10041 B72-10045 01

- Flexible, low-cost silicon solar cell arrays
LEWIS-11069 B72-10177 02

- An electrohydrodynamic heat pipe
ARC-10601 B72-10251 03

- Magnet-wire wrapping tool for integrated circuits
NPO-11815 B72-10426 07

- Improved electrical spot terminals
NPO-10034 B72-10492 01

- Slitting flat conductor cables with the single cutting edge slitter
M-FS-20111 B72-10575 07

- Energy absorbing system for mechanical impacts
NPO-10671 B72-10712 06

INSULATORS

- Improved high voltage insulator for use in vacuum
LEWIS-11401 B72-10181 01

- Thin-film ultraviolet detector and spectrometer
NPO-11432 B72-10701 03

INTAKE SYSTEMS

- Electronic switching circuit uses complementary non-linear components
AEC-10060 B72-10236 01

- Automatic air flow control in air conditioning ducts
GSFC-11445 B72-10490 06

- Design criteria monograph on turbopump inducers
LEWIS-11824 B72-10635 08

- Experimental study of flow distribution with circumferential manifolds
LEWIS-11649 B72-10738 06

INTEGRAL EQUATIONS

- Program to determine radiating, nonadiabatic, inviscid flow over a blunt body by the method of integral relations
LANGLEY-11048 B72-10067 09

- Indefinite integrals of products of some exponential and trigonometric functions
LEWIS-11493 B72-10225 09

INTEGRATED CIRCUITS

- Coaxial inverted geometry epitaxial transistor
ARC-10330 B72-10056 01

- Solid state television camera has no imaging tube
M-FS-21553 B72-10254 02

- Nondestructive testing of microtab welds
ARC-10176 B72-10296 02

- Microminiature gas chromatographic column
ARC-10594 B72-10306 04

- Magnet-wire wrapping tool for integrated circuits
NPO-11815 B72-10426 07

- Wide-range nuclear magnetic resonance detector
LEWIS-11513 B72-10478 03

- Universal dc signal conditioner
MSC-17526 B72-10510 02

- Improved optical filters for automated visual inspection
HQ-10720 B72-10521 03

- Two autowire versions for CDC-3200 and IBM-360
GSFC-11526 B72-10608 09

- Redundancy approaches in bubble domain memories
M-FS-21915 B72-10643 01

- An approach to real-time process control of semiconductor wire-bonding
M-FS-21558 B72-10644 08

- Dual field alignment display and control for electron micropattern generator
M-FS-22118 B72-10646 01

- Two-speed deflection system for electron micropattern generator
M-FS-22117 B72-10668 02

- Low distortion automatic phase control circuit
M-FS-21671 B72-10682 02

INTRAVENOUS PROCEDURES

- Development of chip passivated monolithic complementary MISFET circuits with beam leads
M-FS-22264 B72-10696 01

INTEGRATORS

- Precision voltage regulator
NPO-11502 B72-10092 01

- Electronic integrator for gyro rate output voltages
NPO-11499 B72-10555 01

INTENSIFIERS

- Improved intensifying screen reduces X-ray exposure
AEC-10090 B72-10232 03

INTENSITY

- High-intensity source of extreme ultraviolet
HQ-10754 B72-10528 03

- High field CdS detector for infrared radiation
LANGLEY-11027 B72-10725 04

INTERFACIAL TENSION

- Potentiometer, constant tension and lubrication device
KSC-10723 B72-10541 02

INTERFERENCE

- Composite mobile system for holographic nondestructive testing
M-FS-21704 B72-10351 03

INTERFEROMETERS

- Interferometric rotation sensor
ARC-10278 B72-10274 03

- Interferometer using RF switching matrix
GSFC-11051 B72-10462 01

- Unsupported thin film beam splitter
GSFC-10525 B72-10471 02

INTERFEROMETRY

- Sensitive holographic detection of small aerodynamic perturbations
ARC-10422 B72-10209 03

- Radio direction finder
NPO-11573 B72-10508 02

INTERMEDIATE FREQUENCIES

- Signal to noise measurement circuit
GSFC-11239 B72-10102 01

INTERMETALLICS

- New twisted intermetallic compound superconductor: A concept
LEWIS-11015 B72-10282 04

INTERMITTENCY

- Oxygen pressure control for electrolysis cells
ARC-10250 B72-10074 02

- Miniature intermittent contact switch
ARC-10450 B72-10271 01

INTERNAL COMBUSTION ENGINES

- Hydraulic valve lifter remover
M-FS-21377 B72-10110 07

- Fluidic systems may improve combustion in automotive engines
ARC-10582 B72-10250 06

INTERPOLATION

- Third order digital-to-analog converter
MSC-12458 B72-10030 02

INTERRUPTION

- Software control for large scale on-board checkout: A concept
MSC-13977 B72-10015 09

INTRAVENOUS PROCEDURES

- Heart catheter cable and connector
ARC-10406 B72-10200 05

- Intravenous fluid flow meter concept for zero gravity environment
MSC-14123 B72-10461 05

INVERTERS

- Illumination control system
ARC-10527 872-10167 02
- INVESTIGATION**
Hydraulic modeling of heat dispersion in large lakes
AEC-10003 872-10039 03
- INVISCID FLOW**
Program to determine radiating, nonadiabatic, inviscid flow over a blunt body by the method of integral relations
LANGLEY-11048 872-10067 09
- INVOLUNTARY ACTIONS**
Scanning technique for tracking small eye-movements
ARC-10488 872-10220 05
- IODIDES**
Dispersion-strengthened chromium alloy
LEWIS-10982 872-10378 04
- IODINE**
Halogenation of microcapsule walls
ARC-10410 872-10161 04
- ION ACCELERATORS**
High voltage electrical insulation coating for refractory materials
LEWIS-11479 872-10290 04
- ION EMISSION**
High-intensity source of extreme ultraviolet
HQ-10754 872-10528 03
- ION ENGINES**
Improved high voltage insulator for use in vacuum
LEWIS-11401 872-10181 01
- ION IMPACT**
Cathode for use with low density gases
HQ-10687 872-10530 01
Prevention of cathode damage from positive ion bombardment
HQ-10688 872-10654 03
- ION PRODUCTION RATES**
A study of radiation environment in space and its biological effects
HQ-10798 872-10662 03
- ION PUMPS**
Baffle to confine glow discharge in ion pump
M-FS-21575 872-10324 03
- ION SOURCES**
Comparative performance of double-focus and quadrupole mass spectrometers
NPO-11689 872-10702 03
- IONIC COLLISIONS**
Properties of ionization breakdown of air at microwave frequencies and optimization of component dimensions for maximum microwave power
M-FS-21924 872-10316 01
- IONIZATION**
Device for measuring electric fields
ARC-10164 872-10148 03
Direct analysis of hydrogen/deuterium mixtures: A concept
NPO-11322 872-10244 03
Ion plating seals microcracks or porous metal components
LEWIS-11657 872-10397 04
New meter probes provide protection from high current power sources at potentials up to 600 volts
LANGLEY-10804 872-10455 01

IONIZATION CHAMBERS

- Simple dynamic electromagnetic radiation detector
LEWIS-11159 872-10227 03
Fast response densitometer for measuring liquid density
M-FS-14478 872-10664 02
- IONIZATION POTENTIALS**
Properties of ionization breakdown of air at microwave frequencies and optimization of component dimensions for maximum microwave power
M-FS-21924 872-10316 01
- IONIZED GASES**
Direct analysis of hydrogen/deuterium mixtures: A concept
NPO-11322 872-10244 03
- IONS**
Introduction of lithium into the front surface of solar cells
NPO-11404 872-10086 02
Mass separator for low velocity ions
ARC-10375 872-10123 03
Sputter etching of hemispherical bearings
HQ-10712 872-10534 08
- IRIDIUM**
Low temperature catalytic ignition of hydrogen and oxygen
ARC-10492 872-10127 03
- IRISES (MECHANICAL APERTURES)**
The thin film microwave iris
LANGLEY-10511 872-10548 02
- IRON**
Long-term drift of thermocouples at 1600 K
LEWIS-11471 872-10176 01
Wide-range dynamic pressure sensor
ARC-10263 872-10196 03
Magnetic-doped alloys with very large Seebeck coefficients
M-FS-21410 872-10318 04
- IRON OXIDES**
Sheet plastic filters for solar cells
NPO-11464 872-10090 04
- IRRADIANCE**
A compact spectroradiometer for solar simulator measurements
HQ-10683 872-10327 03
- IRRADIATION**
Sputter etching of hemispherical bearings
HQ-10712 872-10534 08
Erasable holographic medium using cis-trans isomerization
M-FS-22062 872-10720 03
High field CdS detector for infrared radiation
LANGLEY-11027 872-10725 04
- ISENTROPIC PROCESSES**
Computer program for natural gas flow through nozzles
LEWIS-11534 872-10362 09
- ISOCYANATES**
Fire retardant polyisocyanurate foam
ARC-10280 872-10269 04
- ISOLATION**
Hermetic isolation valves
ARC-10505 872-10013 06
Multiple reaction mass and isolation system
M-FS-24119 872-10441 06
Sterile chamber operation with bio-isolator suit system
LANGLEY-11054 872-10547 05

ISOLATORS

- Multiple reaction mass and isolation system
M-FS-24119 872-10441 06
- ISOMERIZATION**
Erasable holographic medium using cis-trans isomerization
M-FS-22062 872-10720 03
- ISOMERS**
Erasable holographic medium using cis-trans isomerization
M-FS-22062 872-10720 03
- ISOTHERMAL PROCESSES**
High strength alloy for immediate temperature, 24 to 704 C. (75 to 1300 F), applications
LEWIS-11634 872-10344 04
- ISOTROPISM**
Isogrid structure
M-FS-21567 872-10323 06
- ISOTROPY**
Isotropic pyrolytic carbons
ARC-10532 872-10029 04
- ITERATION**
Snap dynamics
M-FS-21531 872-10265 09
- ITERATIVE NETWORKS**
Topological solution of bilateral switching networks
ARC-10294 872-10055 01
- ITERATIVE SOLUTION**
Computer method for identification of boiler transfer functions
LEWIS-11808 872-10582 09
Computer program for fitting low-order polynomial splines by method of least squares
LEWIS-11651 872-10585 09
- J**
- JET AIRCRAFT NOISE**
Reduction of fan noise: A concept
ARC-10312 872-10040 06
Evaluation of jet engine noise
M-FS-21416 872-10263 03
- JET AMPLIFIERS**
Fluidic pressure regulators
ARC-10474 872-10162 06
- JET ENGINE FUELS**
Thermally resistant polymers for fuel tank sealants
M-FS-21232 872-10358 04
Air assist fuel nozzle reduces aircraft gas turbine engine emissions at idle operation
LEWIS-11512 872-10434 07
Heat transfer correlations for kerosene fuels and mixtures and physical properties for Jet A fuel
LEWIS-11652 872-10742 04
- JET ENGINES**
Reduction of fan noise: A concept
ARC-10312 872-10040 06
Advanced protective coating for superalloys
LEWIS-11473 872-10150 04
Air assist fuel nozzle reduces aircraft gas turbine engine emissions at idle operation
LEWIS-11512 872-10434 07

JET EXHAUST

Air assist fuel nozzle reduces aircraft gas turbine engine emissions at idle operation

LEWIS-11512 872-10434 07

JET FLAPS

Dynamic valve to supply constant total thrust to two orifice jets

ARC-10239 872-10120 07

Ejector nozzle with massive blowing

ARC-10621 872-10693 06

JET FLOW

Investigations of a turbulent jet in a crossflow

LEWIS-11680 872-10437 06

JET MIXING FLOW

Investigations of a turbulent jet in a crossflow

LEWIS-11680 872-10437 06

JET PROPULSION

Evaluation of jet engine noise

M-FS-21416 872-10263 03

JET PUMPS

Computer programs for the design of liquid-to-liquid jet pumps

LEWIS-11679 872-10584 09

JOINING

Aluminum foil interconnects for solar cell panels

ARC-10374 872-10058 08

JOINTS (JUNCTIONS)

Space suit may have orthotic applications

ARC-10275 872-10297 05

Improved high-temperature gimbal joint

LEWIS-11705 872-10489 06

Flexible thermal device

M-FS-21630 872-10612 04

Portable beveling tool

M-FS-16863 872-10678 07

High torque bellows seal rotary drive

LEWIS-11813 872-10681 07

JP-5 JET FUEL

Advanced protective coating for superalloys

LEWIS-11473 872-10150 04

JUNCTION TRANSISTORS

Overlap diffusion for increasing photo-transistor dynamic range

M-FS-20407 872-10347 01

JUPITER (PLANET)

Differential input preamplifier

ARC-10489 872-10165 01

JUPITER PROJECT

Reliability analysis based on operational success criteria

ARC-10490 872-10214 09

K**KALMAN FILTERS**

Variable dimension automatic synthesis programs (VASP)

ARC-10616 872-10065 09

KIDNEYS

Small, low cost, artificial kidney

AEC-10011 872-10371 05

KLYSTRONS

Arc protection system for high-power RF amplifiers

NPO-11560 872-10099 02

KNUDSEN FLOW

Trace contaminant adsorption and sorbent regeneration in closed ecological systems

LANGLEY-10681 872-10328 04

KOVAR (TRADEMARK)

Solar sensor with autocollimator

ARC-10148 872-10192 03

KRYPTON

Simple gas chromatographic system for analysis of microbial respiratory gases

ARC-10403 872-10207 03

KRYPTON 85

Gas leak-detection system

NPO-11405 872-10087 03

L**LABORATORIES**

Real-time pair-feeding of animals

ARC-10302 872-10298 05

LABORATORY EQUIPMENT

Laboratory leak tester provides high sensitivity

AEC-10042 872-10240 03

Rapid evaluation of reverse-osmosis membranes

ARC-10659 872-10413 04

A magnetic mouse activity meter

HQ-10664 872-10482 05

Automatic agar tray inoculation device

LANGLEY-11074 872-10637 05

LACTATES

Stabilization of lactate dehydrogenase

ARC-10415 872-10062 05

LADDERS

Cylindrically shaped rope ladder

M-FS-16319 872-10688 07

LAKES

Effect of thermal discharges on the mass energy balance of Lake Michigan

AEC-10013 872-10004 03

Hydraulic modeling of heat dispersion in large lakes

AEC-10003 872-10039 03

LAMB WAVES

Enhanced Lamb dip for absolute laser frequency stabilization

HQ-10695 872-10481 02

LAMINAR BOUNDARY LAYER

Program for calculating laminar and turbulent boundary layers in arbitrary pressure gradients

LEWIS-11097 872-10111 09

LAMINAR FLOW

Design of two-dimensional sharp-edged-throat supersonic nozzle with boundary-layer correction

LEWIS-11636 872-10070 09

Program for calculating laminar and turbulent boundary layers in arbitrary pressure gradients

LEWIS-11097 872-10111 09

Heat transfer correlations for kerosene fuels and mixtures and physical properties for Jet A fuel

LEWIS-11652 872-10742 04

Reduction of noise in gyro outputs

NPO-11603 872-10743 06

LAMINAR HEAT TRANSFER

Computation of laminar heat transfer from gaseous plasmas in electromagnetic fields

NPO-11725 872-10707 03

LAMINATES

Vortex servovalve for fluidic or electrical input

ARC-10155 872-10173 07

New polyimide polymer has excellent processing characteristics with improved thermo-oxidative and hydrolytic stabilities

LEWIS-11323 872-10175 04

Convuluted fabric for full-pressure gloves

ARC-10529 872-10215 04

Nondestructive testing for braze voids in thin panels by use of special coatings

LANGLEY-10486 872-10374 08

Built-in bleeder system in laminated plastic structures

MSC-17713 872-10562 08

LANDING MODULES

Optimized braking of landing vehicles with atmospheric drag

NPO-11402 872-10084 06

LANGUAGE PROGRAMMING

Standardization and qualification of computer programs for circuit design

M-FS-21537 872-10142 09

Chrysler improved numerical differencing analyzer for third generation computers

CINDA-3G 872-10721 09

LAPLACE TRANSFORMATION

Effects of nonuniform swash-plate stiffness on coupled blade-control system dynamics and stability

LANGLEY-11068 872-10749 06

LARGE SCALE INTEGRATION

Topological solution of bilateral switching networks

ARC-10294 872-10055 01

Flexible desk top computers using Large Scale Integration (LSI) chips

M-FS-21277 872-10112 01

Packaging concept for LSI beam lead integrated circuits

M-FS-21374 872-10329 07

Memory reduction through higher level language hardware

M-FS-21128 872-10350 09

An approach to real-time process control of semiconductor wire-bonding

M-FS-21558 872-10644 08

LASER OUTPUTS

Diatomic infrared gasdynamic laser permits selection of wavelengths

ARC-10370 872-10206 03

Transmission of optical frequencies with minimal losses

HQ-10541 872-10389 03

Laser beam deflection control: A concept

MSC-13814 872-10411 02

Alignment microscope for rotating laser scanner

MSC-14118 872-10435 03

Efficient wire-grid duplexer-polarized for CO₂ lasers

GSFC-11403 872-10440 03

Particle detection with intensified laser beam

HQ-10645 872-10516 03

Measurement of electron density and temperature in plasmas

ARC-10598 872-10563 03

Laser mass spectrometer

ARC-10687 872-10571 03

- Oscillation of laser-beam intensity as observed with beam splitters
 ARC-10694 B72-10572 03
 A bi-stable optical device
 HQ-10701 B72-10655 03
 Optimal read/write memory system components
 M-FS-22044 B72-10697 01
- LASERS**
 Experimental study of surface cracks
 MSC-14032 B72-10019 04
 Sensitive holographic detection of small aerodynamic perturbations
 ARC-10422 B72-10209 03
 Hybrid holographic system
 M-FS-20074 B72-10260 03
 Laser frequency modulation with electron plasma
 AEC-10079 B72-10373 03
 Laser beam deflection control: A concept
 MSC-13814 B72-10411 02
 Acousto-optic filter for electronic laser tuning
 HQ-10715 B72-10520 03
 An absorption spectrum amplifier for determining gas composition
 HQ-10752 B72-10524 03
 Film handling system for laser scanner/recorder
 MSC-14121 B72-10539 07
- LATCHES**
 Latch mechanism
 M-FS-21606 B72-10457 08
- LATERAL CONTROL**
 A cable stabilizer for outdoor elevators
 KSC-10513 B72-10283 07
- LATEX**
 Covalent bonding of antibodies of polystyrene latex beads: A concept
 MSC-13906 B72-10006 05
- LATHES**
 Electro-chemical grinding
 LANGLEY-10801 B72-10744 08
- LATTICE VIBRATIONS**
 Spark ultrasonic transducer
 M-FS-21233 B72-10594 04
- LAUNCH VEHICLES**
 Rapid analysis of electric propulsion missions
 ARC-10430 B72-10299 09
- LAYERS**
 Nondestructive-test standards for evaluation of fiber-reinforced composites
 M-FS-21288 B72-10157 04
- LEACHING**
 Leaching of nitroso rubber material removes uncured polymer
 MSC-17185 B72-10449 04
- LEAD (METAL)**
 Explosive cord
 M-FS-21928 B72-10293 08
 Flexible shielding system for radiation protection
 LRL-10028 B72-10500 03
- LEAD ALLOYS**
 A simple, efficient resistance soldering apparatus
 GSFC-10913 B72-10649 08
- LEAD TITANATES**
 A sonic transducer to detect fluid leaks
 KSC-10704 B72-10376 01
- LEAKAGE**
 Zero-leakage valves
 ARC-10506 B72-10024 06
- Gas leak-detection system
 NPO-11405 B72-10087 03
 High speed, self-acting, face-contact shaft seal has low leakage and very low wear
 LEWIS-11598 B72-10114 07
 Micro regulating ball valve
 ARC-10295 B72-10121 06
 Laboratory leak tester provides high sensitivity
 AEC-10042 B72-10240 03
 Properties of ionization breakdown of air at microwave frequencies and optimization of component dimensions for maximum microwave power
 M-FS-21924 B72-10316 01
 Helium leak measurements using CO₂ as a carrier
 M-FS-21742 B72-10354 03
 A sonic transducer to detect fluid leaks
 KSC-10704 B72-10376 01
 Expandable coating cocoon leak detection system
 M-FS-21848 B72-10380 06
 Leak test system
 M-FS-21788 B72-10576 06
- LEAST SQUARES METHOD**
 Computer program for fitting low-order polynomial splines by method of least squares
 LEWIS-11651 B72-10585 09
 Method for nonlinear exponential regression analysis
 M-FS-21965 B72-10622 09
- LEATHER**
 Potentiometer, constant tension and lubrication device
 KSC-10723 B72-10541 02
- LENSES**
 Optical alignment of electrodes on electrical discharge machines
 XAC-09489 B72-10036 07
 Nematic liquid crystals for optical shutters: A concept
 NPO-11367 B72-10083 03
 Glass technology involved in the manufacture of magnetometer components
 GSFC-11283 B72-10132 03
 Conical electromagnetic radiation flux concentrator
 M-FS-21613 B72-10147 03
 Solar sensor with autocollimator
 ARC-10148 B72-10192 03
 Visual sensitivity tester
 ARC-10329 B72-10203 05
- LEVEL (HORIZONTAL)**
 Two-axis leveling detector system
 M-FS-21344 B72-10392 02
- LEVELING**
 Two-axis leveling detector system
 M-FS-21344 B72-10392 02
- LEVERS**
 Bileaf mechanical strain gage
 ARC-10303 B72-10197 07
- LIAPUNOV FUNCTIONS**
 Algorithm for Liapunov stability analysis
 ARC-10498 B72-10023 09
- LIBRARIES**
 Automatic computer subprogram selection from application-program libraries - ALTLIB
 LANGLEY-11124 B72-10607 09
 Three bit mass spectral search program
 NPO-11960 B72-10747 09
- LIFE DETECTORS**
 Particle detection by a light-scattering technique
 ARC-10384 B72-10160 03
 Simple gas chromatographic system for analysis of microbial respiratory gases
 ARC-10403 B72-10207 03
 A reusable prepositioned ATP reaction chamber
 HQ-10660 B72-10525 05
- LIFE SCIENCES**
 A reusable prepositioned ATP reaction chamber
 HQ-10660 B72-10525 05
- LIFE SUPPORT SYSTEMS**
 Cell for electrolysis of water vapor
 ARC-10521 B72-10166 03
 Solid amine compounds as sorbents for carbon dioxide: A concept
 ARC-10571 B72-10421 04
 Breathing-metabolic simulator
 HQ-10766 B72-10657 05
 Metabolic simulation chamber
 HQ-10776 B72-10658 05
 Automation of Bosch reaction for CO₂ reduction
 M-FS-21674 B72-10666 04
- LIFT AUGMENTATION**
 Ejector nozzle with massive blowing
 ARC-10621 B72-10693 06
- LIFT DEVICES**
 Ejector nozzle with massive blowing
 ARC-10621 B72-10693 06
- LIFT DRAG RATIO**
 Integrated flight controller for light aircraft
 ARC-10456 B72-10213 06
- LIFT FANS**
 Reduction of fan noise: A concept
 ARC-10312 B72-10040 06
 Bonding titanium to Rene 41 alloy
 ARC-10311 B72-10041 08
- LIGHT (VISIBLE RADIATION)**
 Interferometric rotation sensor
 ARC-10278 B72-10274 03
 Unsupported thin film beam splitter
 GSFC-10525 B72-10471 02
 A reusable prepositioned ATP reaction chamber
 HQ-10660 B72-10525 05
 A bi-stable optical device
 HQ-10701 B72-10655 03
 Erasable holographic medium using cis-trans isomerization
 M-FS-22062 B72-10720 03
- LIGHT ADAPTATION**
 Nematic liquid crystals for optical shutters: A concept
 NPO-11367 B72-10083 03
- LIGHT AIRCRAFT**
 Integrated flight controller for light aircraft
 ARC-10456 B72-10213 06
- LIGHT AMPLIFIERS**
 A sensitive image intensifier which uses inert gas
 LRL-10024 B72-10312 03
- LIGHT BEAMS**
 Pulse excitation of bolometer bridges
 ARC-10292 B72-10054 01
 Hybrid holographic system
 M-FS-20074 B72-10260 03
 Optical enhancement of sensitivity in laser Doppler velocity systems
 ARC-10653 B72-10310 03

LIGHT EMISSION

Temperature compensation of light-emitting diodes
ARC-10467 872-10218 01

LIGHT MODULATION

Hybrid holographic system
M-FS-20074 872-10260 03

LIGHT SCATTERING

Particle detection by a light-scattering technique
ARC-10384 872-10160 03
Optical enhancement of sensitivity in laser Doppler velocity systems
ARC-10653 872-10310 03

LIGHT SOURCES

Particle detection by a light-scattering technique
ARC-10384 872-10160 03
Solar sensor with autocollimator
ARC-10148 872-10192 03
Projections of scan patterns on human retina
ARC-10181 872-10193 05
A dual-beam actinic light source for photosynthesis research
ARC-10351 872-10205 05
An improved apochromatic wedge utilizing optical molecular contact bonding
GSFC-11082 872-10388 03

LIGHT TRANSMISSION

Particle detection by a light-scattering technique
ARC-10384 872-10160 03
Hybrid holographic system
M-FS-20074 872-10260 03
Unsupported thin film beam splitter
GSFC-10525 872-10471 02

LIGHTNING

Lightning flash detection system
ARC-10562 872-10272 02
Automatic lightning location system
AEC-10077 872-10372 02

LIMESTONE

Fluidized-bed combustion reduces atmospheric pollutants
AEC-10085 872-10431 04

LIMITER CIRCUITS

Signal to noise measurement circuit
GSFC-11239 872-10102 01

LINEAR ACCELERATORS

Linear accelerator: A concept
KSC-10618 872-10636 06

LINEAR ARRAYS

Piezoelectric actuator uses sequentially-excited multiple elements: A concept
NPO-11527 872-10096 01

LINEAR EQUATIONS

An empirical relationship for the penetration of 1 to 3 MeV electrons
LEWIS-11495 872-10144 04
A linear programming manual
HQ-10743 872-10671 09

LINEAR PROGRAMMING

A linear programming manual
HQ-10743 872-10671 09

LINEAR SYSTEMS

Circuit permits independent adjustment of gain and offset at constant input impedance
ARC-10348 872-10057 01
Compensator design for low-sensitivity linear time-invariant systems (COMPDES)
M-FS-21652 872-10486 09

LIQUEFIED GASES

Use of thin plastic films at cryogenic temperatures
LEWIS-11047 872-10038 04
A reliable liquid helium detector
LEWIS-11487 872-10145 01
Thermal control for storage of cryogenic propellants in a multiple-tank system: A concept
ARC-10560 872-10278 03
Combination pressure regulator and safety valve: A Concept
MSC-14088 872-10446 06
High pressure liquid gas pump
MSC-14087 872-10590 06
Freon 21 bearing lubrication and coolant system
HQ-10302 872-10651 06

LIQUID COOLING

Improved temperature control of liquid cooling garments
MSC-13917 872-10281 05
A cryopump for cooling objects at a distance
LRL-10031 872-10314 03
Fill and vent quick disconnect
M-FS-21822 872-10645 07

LIQUID CRYSTALS

Nematic liquid crystals for optical shutters: A concept
NPO-11367 872-10083 03
Angular velocity and acceleration meter
LEWIS-11466 872-10183 06
A stable liquid crystal for electro-optical displays
HQ-10714 872-10746 04

LIQUID FLOW

Positive fast sealing union connections
LEWIS-11290 872-10133 06
An electrohydrodynamic heat pipe
ARC-10601 872-10251 03
A permeable rotating-wheel solvent extractor
LRL-10033 872-10343 04

LIQUID HELIUM

A reliable liquid helium detector
LEWIS-11487 872-10145 01
Low temperature scale for a 1 to 20 degree Kelvin region
AEC-10007 872-10146 03
Liquid-helium-cooled Michelson interferometer
ARC-10554 872-10217 03
Design curve for liquid helium storage vessels
LEWIS-11498 872-10286 02
Multipurpose top for liquid helium Dewar
ARC-10533 872-10302 03
Magnetic-doped alloys with very large Seebeck coefficients
M-FS-21410 872-10318 04

LIQUID HYDROGEN

Main tank injection pressurization program
LEWIS-11368 872-10069 09
Small turbine-type flowmeters for liquid hydrogen
LEWIS-11535 872-10331 06
Turbopump thermodynamic cooling
M-FS-21597 872-10408 06
Fast response densitometer for measuring liquid density
M-FS-14478 872-10664 02

LIQUID LEVELS

Two-axis leveling detector system
M-FS-21344 872-10392 02

LIQUID METALS

A liquid radiation detector with high spatial resolution
MSC-13965 872-10034 03
Composite casting demonstration
M-FS-21668 872-10266 04

LIQUID NITROGEN

Longitudinal friction forces in piping design
M-FS-13754 872-10103 01
Manganese bismuth thin film for large capacity digital memories
M-FS-21246 872-10107 03
Preventing oil migration in vacuum systems
GSFC-11253 872-10129 04
Comparison of catalyst activity
ARC-10493 872-10201 04
Thermal control for storage of cryogenic propellants in a common-bulkhead tank: A concept
ARC-10558 872-10276 03
Safe transport of diborane in a dual refrigerant system: A concept
ARC-10559 872-10277 03
A cryopump for cooling objects at a distance
LRL-10031 872-10314 03
Titanium alloy stress corrosion cracking in presence of dinitrogen tetroxide
M-FS-21113 872-10321 04
Helium leak measurements using CO₂ as a carrier
M-FS-21742 872-10354 03
Free-radical solution-polymerization of trifluoronitrosomethane with tetrafluoroethylene
ARC-10567 872-10419 04
Right angle mounted cold trap
GSFC-11323 872-10436 06
Enhanced Lamb dip for absolute laser frequency stabilization
HQ-10695 872-10481 02
Dry ice plug for hydraulic and pneumatic pipe flushing
MSC-12548 872-10496 06

LIQUID OXYGEN

Aircrew oxygen system
ARC-10247 872-10195 05
A cryopump for cooling objects at a distance
LRL-10031 872-10314 03
Impact sensitivity of materials in contact with liquid and gaseous oxygen at high pressure
M-FS-21930 872-10476 06

LIQUID PHASES

Boiler for generating high quality vapor
LEWIS-11345 872-10135 06

LIQUID PROPELLANT ROCKET ENGINES

Electrodynamic actuators for rocket engine valves
ARC-10486 872-10009 06
Main tank injection pressurization program
LEWIS-11368 872-10069 09
Combination throttle and shutoff valve
M-FS-21513 872-10287 07
Analysis and computer programs to calculate acoustic wave properties of baffled chambers
LEWIS-11529 872-10577 09

- Design criteria monograph for high-load high-speed rolling-contact bearings
LEWIS-11823 B72-10627 04
- Design criteria monograph on turbopump inducers
LEWIS-11824 B72-10635 08
- LIQUID ROCKET PROPELLANTS**
Fluidic pressure regulators
ARC-10474 B72-10162 06
Propellant feed systems transients
MSC-17848 B72-10677 06
- LIQUID SLOSHING**
Prolate spheroidal slosh model for fluid motion
MSC-13864 B72-10182 09
- LIQUID SURFACES**
Prolate spheroidal slosh model for fluid motion
MSC-13864 B72-10182 09
Two-axis leveling detector system
M-FS-21344 B72-10392 02
- LIQUID-LIQUID INTERFACES**
Preparation of stable colloidal dispersions in fluorinated liquids
HQ-10580 B72-10529 04
- LIQUID-SOLID INTERFACES**
Particle detection by a light-scattering technique
ARC-10384 B72-10160 03
- LIQUID-VAPOR INTERFACES**
Boiler for generating high quality vapor
LEWIS-11345 B72-10135 06
- LIQUIDS**
High-temperature, long-life thyratron
LEWIS-11327 B72-10134 01
Low frequency sinusoidal pressure generator
LEWIS-11465 B72-10477 01
Hydrophobic liquid/gas separator for heat pipes
ARC-10656 B72-10549 03
High strength high modulus ceramic fiber
M-FS-21266 B72-10592 04
Fast response densitometer for measuring liquid density
M-FS-14478 B72-10664 02
Diode-quad bridge for reactive transducers and FM discriminators
ARC-10364 B72-10691 01
Parallel-plate viscometer
NPO-11387 B72-10700 03
- LITHIUM**
Oxygen-layer structure improves lithium-doped silicon solar cells
NPO-11403 B72-10085 03
Introduction of lithium into the front surface of solar cells
NPO-11404 B72-10086 02
- LITHIUM COMPOUNDS**
Initiation of polymerization by tetrabutylammonium p-lithiophenoxide
ARC-10553 B72-10223 04
Electron beam chemistry produces high purity metals
LEWIS-11639 B72-10439 04
Radiation-induced nickel deposits
LEWIS-10965 B72-10456 04
- LITHIUM ISOTOPES**
Boron-10 loaded inorganic shielding material
M-FS-22280 B72-10740 04
- LITHIUM NIOBATES**
Acousto-optic filter for electronic laser tuning
HQ-10715 B72-10520 03
- LITHOGRAPHY**
Dual field alignment display and control for electron micropattern generator
M-FS-22118 B72-10646 01
Two-speed deflection system for electron micropattern generator
M-FS-22117 B72-10668 02
- LOAD DISTRIBUTION (FORCES)**
Water impact loads
M-FS-21955 B72-10621 09
- LOADS (FORCES)**
Determination of impact sensitivity of materials at high pressures
MSC-13700 B72-10216 07
Energy absorber uses expanded coiled tube
AEC-10044 B72-10239 06
Ball bearing protector
M-FS-21612 B72-10322 07
Perload indicating turnbuckle
M-FS-21488 B72-10355 07
Multiple reaction mass and isolation system
M-FS-24119 B72-10441 06
Latch mechanism
M-FS-21606 B72-10457 08
Study of high altitude plume impingement
M-FS-21414 B72-10601 09
Water impact loads
M-FS-21955 B72-10621 09
Fluid operated quick release mechanism
M-FS-20205 B72-10640 07
- LOCKING**
Latch mechanism
M-FS-21606 B72-10457 08
Adjustable locking device
M-FS-21650 B72-10459 07
Fluid operated quick release mechanism
M-FS-20205 B72-10640 07
- LOCKS**
Adjustable locking device
M-FS-21650 B72-10459 07
- LOCOMOTION**
Triangular wheel locomotion mechanism
NPO-11366 B72-10714 06
- LOCOMOTIVES**
Prolate spheroidal slosh model for fluid motion
MSC-13864 B72-10182 09
- LOGIC CIRCUITS**
New reaction tester accurate within 56 microseconds
MSC-13604 B72-10031 05
Topological solution of bilateral switching networks
ARC-10294 B72-10055 01
Technique minimizes the effects of dropouts on telemetry records
NPO-11421 B72-10088 02
Dual redundant core memory systems
MSC-13993 B72-10261 09
A rapid, precise, reciprocating-movement color filter system
GSFC-11255 B72-10497 07
Two autowire versions for CDC-3200 and IBM-360
GSFC-11526 B72-10608 09
Irradiation of MOS-FET devices to provide desired logic functions
GSFC-11061 B72-10719 01
Automated analysis of blood pressure measurements (Korotkov sound)
MSC-13999 B72-10756 05
- LOGIC DESIGN**
Two autowire versions for CDC-3200 and IBM-360
GSFC-11526 B72-10608 09
- LOGICAL ELEMENTS**
Ferromagnetic-fluid logic devices
ARC-10503 B72-10011 06
Memory reduction through higher level language hardware
M-FS-21128 B72-10350 09
- LONG TERM EFFECTS**
Drive mechanism for production of simulated human breath
HQ-10777 B72-10659 05
- LOOPS**
Stable photosensor amplifiers
NPO-11561 B72-10100 01
Hexapole magnet field analysis
GSFC-10995 B72-10113 03
Programmed physiological infusion system
ARC-10447 B72-10126 05
Closed-cycle power supply for fluidic control systems
ARC-10480 B72-10163 06
- LOUDNESS**
Loudness (annoyance), prediction procedure for steady sounds
LEWIS-11761 B72-10579 05
- LOUDSPEAKERS**
Electrodynamical actuators for rocket engine valves
ARC-10486 B72-10009 06
Improved audio reproduction system
ARC-10404 B72-10059 01
Scanning technique for tracking small eye-movements
ARC-10488 B72-10220 05
- LOUVERS**
Reduction of fan noise: A concept
ARC-10312 B72-10040 06
- LOW COST**
Low cost anti-galling bushings
LEWIS-11724 B72-10359 08
Radiation-induced nickel deposits
LEWIS-10965 B72-10456 04
Flexible shielding system for radiation protection
LRL-10028 B72-10500 03
Thermocouple tape
LEWIS-11072 B72-10515 04
High strength high modulus ceramic fiber
M-FS-21266 B72-10592 04
- LOW FREQUENCIES**
Advances in induction-heated plasma torch technology
LEWIS-11354 B72-10151 03
Nondispersive infrared analyzer for specific gases in complex mixtures
ARC-10308 B72-10198 03
Low frequency sinusoidal pressure generator
LEWIS-11465 B72-10477 01
- LOW PASS FILTERS**
Signal to noise measurement circuit
GSFC-11239 B72-10102 01
- LOW PRESSURE**
Ferromagnetic-fluid logic devices
ARC-10503 B72-10011 06
A piezoelectrically actuated ball valve
ARC-10338 B72-10204 06
Devolatilization of polymer resins
GSFC-11358 B72-10280 04

LOW TEMPERATURE

Improved elastomer for use with oxygen difluoride
 ARC-10528 B72-10027 04
 Low temperature catalytic ignition of hydrogen and oxygen
 ARC-10492 B72-10127 03
 Hydrogen eliminator
 ARC-10408 B72-10208 03
 Adhesive for aluminum withstands cryogenic temperatures
 M-FS-16848 B72-10346 04
 Nonmetallic impurities improve mechanical properties of vapor-deposited tungsten
 LEWIS-10800 B72-10454 04
 Temperature control of a cryogenic bath
 HQ-10788 B72-10532 03

LOW TEMPERATURE ENVIRONMENTS

Dry ice plug for hydraulic and pneumatic pipe flushing
 MSC-12548 B72-10496 06

LOW TEMPERATURE PHYSICS

Thermal control for storage of cryogenic propellants in a multiple-tank system: A concept
 ARC-10560 B72-10278 03

LOW TEMPERATURE TESTS

Right angle mounted cold trap
 GSFC-11323 B72-10436 06

LOW THRUST

Rapid analysis of electric propulsion missions
 ARC-10430 B72-10299 09

LOW THRUST PROPULSION

Final report on a study of low-density nozzle flows, with application to microthrust rockets
 HQ-10761 B72-10748 06

LOW WEIGHT

Two-stage coaxial gas compressor
 ARC-10426 B72-10210 06

LUBRICANTS

Lubricant selection for gear designers
 LEWIS-11483 B72-10136 04
 A tool for cutting ultra thin slits in metals.
 KSC-10770 B72-10433 07
 Nonflammable and abrasion resistant coating process for glass fibers
 MSC-14024 B72-10445 08
 Research on bearing lubricants for use in a high vacuum
 M-FS-22119 B72-10469 04
 Design criteria monograph for high-load high-speed rolling-contact bearings
 LEWIS-11823 B72-10627 04
 Freon 21 bearing lubrication and coolant system
 HQ-10302 B72-10651 06

LUBRICATING OILS

New full-complement ball bearing lubrication technique
 MSC-13850 B72-10174 07
 Chuck for delicate drills
 ARC-10660 B72-10414 07
 Potentiometer, constant tension and lubrication device
 KSC-10723 B72-10541 02

LUBRICATION

Freon 21 bearing lubrication and coolant system
 HQ-10302 B72-10651 06

LUBRICATION SYSTEMS

Lubricant selection for gear designers
 LEWIS-11483 B72-10136 04

New full-complement ball bearing lubrication technique
 MSC-13850 B72-10174 07
LUMINAIRES
 Time-lapse camera for microscopy
 ARC-10423 B72-10125 05
 Glass technology involved in the manufacture of magnetometer components
 GSFC-11283 B72-10132 03
 Illumination control system
 ARC-10527 B72-10167 02
 Hand-held photomicroscopy system
 ARC-10468 B72-10190 03
 Vidicon storage tube electrical input/output
 MSC-14053 B72-10285 02

LUMINOUS INTENSITY

High solar intensity radiometer
 LEWIS-11533 B72-10130 03
 Illumination control system
 ARC-10527 B72-10167 02
 High intensity solar cell radiometer
 LEWIS-11549 B72-10480 01

LUNAR COMPOSITION

Remote sensing X-ray spectrometer
 MSC-13978 B72-10016 03

LUNAR GRAVITY SIMULATOR

Constant tension device for gravity simulation
 M-FS-21618 B72-10466 06

LUNAR ROCKS

Remote sensing X-ray spectrometer
 MSC-13978 B72-10016 03

LUNAR TOPOGRAPHY

Remote sensing X-ray spectrometer
 MSC-13978 B72-10016 03

LUNGS

Balanced-bellows spirometer
 XAC-01547 B72-10279 05

M

MACH NUMBER

Continuous-flow variable-density wind tunnel facilities
 NPO-11287 B72-10078 06

MACHINE TOOLS

Tubing cutter
 NPO-11524 B72-10095 07
 Hydraulic valve lifter remover
 M-FS-21377 B72-10110 07
 A tool for cutting ultra thin slits in metals
 KSC-10770 B72-10433 07

MACHINING

Three-point compound sine plate offers cost and weight savings
 MSC-15818 B72-10118 07
 Universal inverted flexure
 ARC-10345 B72-10122 07
 A new low-cost method for producing collimating mirrors
 LEWIS-11553 B72-10513 08
 Machine finishes balls to high degree of roundness
 M-FS-21448 B72-10595 08

MAGNESIUM OXIDES

Improved magnesia for thermal control coatings
 ARC-10677 B72-10424 04
 Improved transmittance measurement with a magnesium oxide coated integrating sphere
 LEWIS-11840 B72-10717 04

MAGNETIC COILS

Separation of gas mixtures by centrifugation
 ARC-10449 B72-10270 03
 Two-stage magnetometer measures weak magnetic fields
 AEC-10068 B72-10370 01
 Laser beam deflection control: A concept
 MSC-13814 B72-10411 02

MAGNETIC CONTROL

Preparation of stable colloidal dispersions in fluorinated liquids
 HQ-10580 B72-10529 04

MAGNETIC CORES

Pseudo-saturating power converter
 NPO-11368 B72-10042 01
 Analysis of circuits including magnetic cores (MTRAC)
 NPO-11494 B72-10724 02

MAGNETIC FIELDS

Circuit controls turn-on current
 NPO-11339 B72-10079 01
 Manganese bismuth thin film for large capacity digital memories
 M-FS-21246 B72-10107 03
 Low noise electromagnetic flowmeter
 M-FS-21291 B72-10108 02
 Hexapole magnet field analysis
 GSFC-10995 B72-10113 03
 Device for measuring electric fields
 ARC-10164 B72-10148 03
 Ferrofluidic solenoid with axial and radial displacement
 NPO-11738 B72-10241 06
 Separation of gas mixtures by centrifugation
 ARC-10449 B72-10270 03
 Alternating current losses in superconducting coils
 M-FS-21129 B72-10360 03
 A manually set magnetic wire counter
 AEC-10039 B72-10369 01
 Two-stage magnetometer measures weak magnetic fields
 AEC-10068 B72-10370 01
 High temperature permeameter for measuring magnetic properties
 LEWIS-11609 B72-10443 03
 Wide-range nuclear magnetic resonance detector
 LEWIS-11513 B72-10478 03
 Metastable atom probe for measuring electron beam density profiles
 M-FS-21593 B72-10485 03
 Magnetometer uses bismuth-selenide
 LEWIS-11632 B72-10629 03

MAGNETIC FLUX

Pseudo-saturating power converter
 NPO-11368 B72-10042 01
 Low noise electromagnetic flowmeter
 M-FS-21291 B72-10108 02
 Ferrofluidic solenoid with axial and radial displacement
 NPO-11738 B72-10241 06
 Alternating current losses in superconducting coils
 M-FS-21129 B72-10360 03
 A brushless dc spin motor for momentum exchange altitude control
 M-FS-14952 B72-10448 02
 Current switch has built-in time delay: A concept
 MSC-17324 B72-10453 01
 Magnets with stabilized conductors
 HQ-10727 B72-10465 03

MAGNETIC INDUCTION

Two-stage magnetometer measures weak magnetic fields
AEC-10068 B72-10370 01

MAGNETIC LENSES

Mass separator for low velocity ions
ARC-10375 B72-10123 03

MAGNETIC MATERIALS

Magnet-wire wrapping tool for integrated circuits
NPO-11815 B72-10426 07
Preparation of stable colloidal dispersions in fluorinated liquids
HQ-10580 B72-10529 04

MAGNETIC MEASUREMENT

Improved laboratory gradiometer can be a field survey instrument
MSC-13980 B72-10001 03
Two-stage magnetometer measures weak magnetic fields
AEC-10068 B72-10370 01

MAGNETIC PERMEABILITY

Two-stage magnetometer measures weak magnetic fields
AEC-10068 B72-10370 01

MAGNETIC PROBES

Improved system for measuring speed of rotating machinery
ARC-10413 B72-10179 07
Magnetic circuitry mutual coupling probe
M-FS-21664 B72-10535 02

MAGNETIC PROPERTIES

High temperature permeameter for measuring magnetic properties
LEWIS-11609 B72-10443 03
Magnets with stabilized conductors
HQ-10727 B72-10465 03
Preparation of stable colloidal dispersions in fluorinated liquids
HQ-10580 B72-10529 04
Analysis of circuits including magnetic cores (MTRAC)
NPO-11494 B72-10724 02

MAGNETIC RECORDING

Technique minimizes the effects of dropouts on telemetry records
NPO-11421 B72-10088 02

MAGNETIC STORAGE

A manually set magnetic wire counter
AEC-10039 B72-10369 01
Source deck compression and update program (CAPS)
GSFC-11545 B72-10619 09

MAGNETIC TAPES

Video information system
M-FS-21711 B72-10267 09
Source deck compression and update program (CAPS)
GSFC-11545 B72-10619 09

MAGNETOHYDRODYNAMICS

Pulsed high-power arc heater with improved cathode and triggering mechanism
ARC-10173 B72-10048 03
Separation of gas mixtures by centrifugation
ARC-10449 B72-10270 03

MAGNETOMETERS

Improved laboratory gradiometer can be a field survey instrument
MSC-13980 B72-10001 03
Hexapole magnet field analysis
GSFC-10995 B72-10113 03
Glass technology involved in the manufacture of magnetometer components
GSFC-11283 B72-10132 03

Two-stage magnetometer measures weak magnetic fields
AEC-10068 B72-10370 01
Magnetometer uses bismuth-selenide
LEWIS-11632 B72-10629 03

MAGNETS

Hexapole magnet field analysis
GSFC-10995 B72-10113 03
Overlay board for control consoles
ARC-10007 B72-10191 02
A magnetic mouse activity meter
HQ-10664 B72-10482 05

MAGNIFICATION

Optical alignment of electrodes on electrical discharge machines
XAC-09489 B72-10036 07
Bileaf mechanical strain gage
ARC-10303 B72-10197 07
Slitting flat conductor cables with the single cutting edge slitter
M-FS-20111 B72-10575 07

MAINTENANCE

Positive fast sealing union connections
LEWIS-11290 B72-10133 06

MAN MACHINE SYSTEMS

Dc motor proportional control system for orthotic devices
M-FS-21573 B72-10617 05
A proposed remote manipulator system: A concept
MSC-14245 B72-10733 06

MANAGEMENT METHODS

Manufacturing contamination prevention handbook
M-FS-19113 B72-10394 08
Program for creating an operating system generation cross reference index (SGINDEX)
GSFC-11612 B72-10650 09

MANAGEMENT PLANNING

Technical management techniques for identification and control of industrial safety and pollution hazards
M-FS-21883 B72-10588 05
System/360 Computer Assisted Network Scheduling (CANS) System
GSFC-10909 B72-10599 09
FORTRAN manpower account program
NPO-11973 B72-10623 09

MANAGEMENT SYSTEMS

Reliability analysis based on operational success criteria
ARC-10490 B72-10214 09

MANDRELS

Convolute fabric for full-pressure gloves
ARC-10529 B72-10215 04
Fabrication of uniaxial filament-reinforced epoxy tubes for structural application
LANGLEY-10203 B72-10340 04
New compression molding process of thermosetting plastic compounds
LANGLEY-10782 B72-10356 08

MANGANESE

Manganese bismuth thin film for large capacity digital memories
M-FS-21246 B72-10107 03
Advanced infrared photomultiplier
M-FS-20941 B72-10152 03

MANIFOLDS

Dispersion ring reduces injector orifice-to-orifice flow variation
MSC-15953 B72-10117 07
Interconnections for fluidic circuits
ARC-10481 B72-10164 02

Experimental study of flow distribution with circumferential manifolds
LEWIS-11649 B72-10738 06

MANIPULATORS

A proposed remote manipulator system: A concept
MSC-14245 B72-10733 06

MANNED SPACE FLIGHT NETWORK

Deep space network
NPO-11562 B72-10043 01
System/360 Computer Assisted Network Scheduling (CANS) System
GSFC-10909 B72-10599 09

MANNED SPACECRAFT

Airlock caution and warning system
M-FS-21576 B72-10467 02

MANUAL CONTROL

Overlay board for control consoles
ARC-10007 B72-10191 02

MANUALS

Standard environmental testing practices
NPO-11567 B72-10101 02
The design of an automated verification of redundant systems
KSC-10702 B72-10295 02
Radiological control manual
M-FS-22092 B72-10460 03
Phase-change materials handbook
M-FS-22064 B72-10464 04
A linear programming manual
HQ-10743 B72-10671 09

MANUFACTURING

Packaging concept for LSI beam lead integrated circuits
M-FS-21374 B72-10329 07
Manufacturing contamination prevention handbook
M-FS-19113 B72-10394 08
Dual field alignment display and control for electron micropattern generator
M-FS-22118 B72-10646 01

MAPS

Analog table look-up device identifies unknown terrain
MSC-13816 B72-10033 03
Hydraulic modeling of heat dispersion in large lakes
AEC-10003 B72-10039 03
Program to produce horizontal stereographic print maps from Nimbus HRIR data
GSFC-11397 B72-10606 09

MARINER PROGRAM

Squib-operated disconnect
NPO-11330 B72-10713 06

MARS LANDING

Particle detection by a light-scattering technique
ARC-10384 B72-10160 03

MARS PROBES

Squib-operated disconnect
NPO-11330 B72-10713 06

MARS SURFACE

Sheet plastic filters for solar cells
NPO-11464 B72-10090 04

MASKING

Sputter etching of hemispherical bearings
HQ-10712 B72-10534 08
Improved photoetching fabrication method
LEWIS-11268 B72-10745 08

MASS

Prolate spheroidal slosh model for fluid motion
MSC-13864 B72-10182 09

SUBJECT INDEX

- Simple turbine balancing test apparatus
LEWIS-11658 872-10377 07
- Multiple reaction mass and isolation system
M-FS-24119 872-10441 06
- MASS DISTRIBUTION**
Effect of thermal discharges on the mass energy balance of Lake Michigan
AEC-10013 872-10004 03
- Gravitational gradiometer measures mass changes
M-FS-20814 872-10140 03
- MASS FLOW**
Experimental study of flow distribution with circumferential manifolds
LEWIS-11649 872-10738 06
- MASS FLOW RATE**
Computer program for natural gas flow through nozzles
LEWIS-11534 872-10362 09
- MASS SPECTRA**
Three bit mass spectral search program
NPO-11960 872-10747 09
- MASS SPECTROMETERS**
Helium leak measurements using CO₂ as a carrier
M-FS-21742 872-10354 03
- Laser mass spectrometer
ARC-10687 872-10571 03
- Comparative performance of double-focus and quadrupole mass spectrometers
NPO-11689 872-10702 03
- MASS SPECTROSCOPY**
Long-term drift of thermocouples at 1600 K
LEWIS-11471 872-10176 01
- Leak decay method of helium bombardment leak testing
M-FS-24109 872-10381 06
- MATERIALS HANDLING**
Positive fast sealing union connections
LEWIS-11290 872-10133 06
- Tool carrier
M-FS-21469 872-10319 07
- Filter cassette for high volume air sampler
LEWIS-11469 872-10379 03
- High pressure liquid gas pump
MSC-14087 872-10590 06
- A proposed remote manipulator system: A concept
MSC-14245 872-10733 06
- MATERIALS RECOVERY**
Composite casting demonstration
M-FS-21668 872-10266 04
- MATERIALS TESTS**
Flame resistant elastic elastomeric fibers
MSC-13923-4 872-10005 04
- Devolatilization of polymer resins
GSFC-11358 872-10280 04
- Graphite and boron-reinforced composite materials data summary
M-FS-21691 872-10294 04
- Protective encapsulation of implantable biotelemetry units
ARC-10514 872-10301 05
- Strengthening lightweight concrete
AEC-10017 872-10430 04
- Equations to assess the impact resistance of fiber composites
LEWIS-11486 872-10503 04
- Laser mass spectrometer
ARC-10687 872-10571 03

- Study of hot hardness characteristics of tool steels
LEWIS-11785 872-10583 04
- Joining porous components to solid metal structures
LEWIS-11259 872-10754 08
- MATHEMATICAL MODELS**
Prolate spheroidal slosh model for fluid motion
MSC-13864 872-10182 09
- Sunspot analysis and prediction
M-FS-21724 872-10317 03
- A study of the power spectral density of an FM signal
M-FS-21070 872-10361 02
- Evaluating foam heterogeneity
AEC-10046 872-10365 04
- Cavitation data for hydraulic equipment
LEWIS-11642 872-10384 07
- Study of hot hardness characteristics of tool steels
LEWIS-11785 872-10583 04
- Thermal conductivity and electrical resistivity of porous materials
LEWIS-11754 872-10587 04
- Thermal induced flow oscillations in heat exchangers for supercritical fluids
M-FS-21262 872-10598 06
- Method for nonlinear exponential regression analysis
M-FS-21965 872-10622 09
- Computer program to generate attitude error equations for a gimballed platform
M-FS-21991 872-10624 09
- A study of radiation environment in space and its biological effects
HQ-10798 872-10662 03
- Computation of laminar heat transfer from gaseous plasmas in electromagnetic fields
NPO-11725 872-10707 03
- Chrysler improved numerical differencing analyzer for third generation computers
CINDA-3G
MSC-11653 872-10721 09
- MATRICES (CIRCUITS)**
Interferometer using RF switching matrix
GSFC-11051 872-10462 01
- MATRICES (MATHEMATICS)**
Algorithm for Liapunov stability analysis
ARC-10498 872-10023 09
- Variable dimension automatic synthesis programs (VASP)
ARC-10616 872-10065 09
- Computer program draws three-dimensional surfaces
LEWIS-10482 872-10253 09
- Snap dynamics
M-FS-21531 872-10265 09
- Cubic spline functions for curve fitting
LRL-10034 872-10311 09
- Method for nonlinear exponential regression analysis
M-FS-21965 872-10622 09
- Computer program to generate attitude error equations for a gimballed platform
M-FS-21991 872-10624 09
- Program to reduce the size of structural matrices
MSC-17619 872-10625 09
- Analytic procedures for determining dimensional redundancies in electronic devices
HQ-10709 872-10656 09

MEASURING INSTRUMENTS

- Numerical solution of potential flow problems in terms of flux components
M-FS-21751 872-10667 09
- A linear programming manual
HQ-10743 872-10671 09
- MEAN**
Control of acceleration in sine/random vibration tests
NPO-11482 872-10091 02
- MEASUREMENT**
Projections of scan patterns on human retina
ARC-10181 872-10193 05
- Nondispersive infrared analyzer for specific gases in complex mixtures
ARC-10308 872-10198 03
- A method for calculating the effects of design errors and measurement errors on pump performance
LEWIS-11503 872-10292 07
- MEASURING INSTRUMENTS**
An improved aesthesiometer
MSC-13609 872-10032 05
- Improved device measures performance of batteries under load
ARC-10252 872-10051 02
- Device for measuring electric fields
ARC-10164 872-10148 03
- Particle detection by a light-scattering technique
ARC-10384 872-10160 03
- Solar sensor with autocollimator
ARC-10148 872-10192 03
- Continuous monitor for gas ratios in a mixture
LEWIS-11095 872-10229 05
- Pressure-probe assembly for wind tunnels
ARC-10569 872-10248 03
- Balanced-bellows spirometer
XAC-01547 872-10279 05
- Multipurpose top for liquid helium Dewar
ARC-10533 872-10302 03
- A compact spectroradiometer for solar simulator measurements
HQ-10683 872-10327 03
- Noncontact torque measurement using stroboscopic techniques
MSC-12282 872-10332 07
- Blood pressure measurement and display system
MSC-13036 872-10334 05
- Deflection resistance indicator
M-FS-24010 872-10401 04
- New meter probes provide protection from high current power sources at potentials up to 600 volts
LANGLEY-10804 872-10455 01
- Wide-range nuclear magnetic resonance detector
LEWIS-11513 872-10478 03
- Metastable atom probe for measuring electron beam density profiles
M-FS-21593 872-10485 03
- Indexing film with a fluidic sensor
MSC-14117 872-10501 02
- A tool for measuring elevator cable tension
KSC-10708 872-10509 07
- A reusable prepositioned ATP reaction chamber
HQ-10660 872-10525 05
- Carbon dioxide concentration indicator
HQ-10582 872-10526 05

- Sensor capsule for diagnosis of gastric disorders
 HQ-10767 872-10531 05
 A stagnation pressure probe for use in supersonic flow
 LANGLEY-11139 872-10543 06
 Probe measures gas and liquid mass flux in high mass flow ratio two-phase flows
 LEWIS-11270 872-10546 06
 Overflow sensor for cryogenic-fluid vessels
 NPO-10619 872-10554 03
 Leak test system
 M-FS-21788 872-10576 06
 Linear accelerator: A concept
 KSC-10618 872-10636 06
 An optical quality meter suitable for cryogenic liquids
 LEWIS-11814 872-10686 06
 Diode-quad bridge for reactive transducers and FM discriminators
 ARC-10364 872-10691 01
 Automatic method of measuring silicon-controlled-rectifier holding current
 LEWIS-11898 872-10752 02
- MECHANICAL DEVICES**
 Low-friction ball-and-socket
 NPO-11348 872-10081 08
 Hydraulic valve lifter remover
 M-FS-21377 872-10110 07
 New full-complement ball bearing lubrication technique
 MSC-13850 872-10174 07
 Bileaf mechanical strain gage
 ARC-10303 872-10197 07
 Separation of gas mixtures by centrifugation
 ARC-10449 872-10270 03
 Space suit may have orthotic applications
 ARC-10275 872-10297 05
 Cutting thin sections of bone
 ARC-10555 872-10303 05
 Ball bearing protector
 M-FS-21612 872-10322 07
 Remote weighing device
 M-FS-21556 872-10325 07
 Portable electron beam weld chamber
 MSC-17738 872-10338 06
 Stem clutch for motor driven valve
 LRL-10032 872-10345 07
 Perload indicating turnbuckle
 M-FS-21488 872-10355 07
 Two-axis leveling detector system
 M-FS-21344 872-10392 02
 Chuck for delicate drills
 ARC-10660 872-10414 07
 Magnet-wire wrapping tool for integrated circuits
 NPO-11815 872-10426 07
 Combination pressure regulator and safety valve: A Concept
 MSC-14088 872-10446 06
 Latch mechanism
 M-FS-21606 872-10457 08
 Constant tension device for gravity simulation
 M-FS-21618 872-10466 06
 Ball detent mechanism
 M-FS-21735 872-10470 07
 Improved high-temperature gimbal joint
 LEWIS-11705 872-10489 06
 No-err typing aids
 M-FS-15218 872-10498 07
- Tandem steerable running gear
 M-FS-22012 872-10499 07
 Self-aligning, low-pressure sealing poppet valve
 MSC-17745 872-10538 07
 Restraint and locomotion aid
 ARC-10153 872-10558 06
 Vise to hold bones or other irregular objects
 ARC-10679 872-10569 07
 Self-deploying boom
 GSFC-10566 872-10574 07
 Study of hot hardness characteristics of tool steels
 LEWIS-11785 872-10583 04
 High pressure liquid gas pump
 MSC-14087 872-10590 06
 Sprag solenoid brake
 M-FS-21846 872-10669 06
 Improved lip seal for rotating shafts
 LEWIS-11602 872-10672 07
 A concept for universal pliers
 KSC-10768 872-10685 07
 A shut-off valve for flexible tubing
 M-FS-21731 872-10687 07
 Concentric-seating poppet
 NPO-11658 872-10704 06
- MECHANICAL DRIVES**
 Lubricant selection for gear designers
 LEWIS-11483 872-10136 04
 Improved high-performance shock tube
 NPO-11885 872-10242 03
 Rotary shutter mechanism contains optical elements
 GSFC-11244 872-10387 03
 High-speed, self-acting shaft seal (circumferential type)
 LEWIS-11274 872-10447 07
 Drive mechanism for production of simulated human breath
 HQ-10777 872-10659 05
 High torque bellows seal rotary drive
 LEWIS-11813 872-10681 07
- MECHANICAL PROPERTIES**
 Low-friction ball-and-socket
 NPO-11348 872-10081 08
 New full-complement ball bearing lubrication technique
 MSC-13850 872-10174 07
 New polyimide polymer has excellent processing characteristics with improved thermo-oxidative and hydrolytic stabilities
 LEWIS-11323 872-10175 04
 Simple, reproducible methods for thermal shock testing of brittle materials
 NUC-11020 872-10228 06
 High strength, medium density molded foam
 AEC-10053 872-10235 04
 Space suit may have orthotic applications
 ARC-10275 872-10297 05
 Thermally resistant polymers for fuel tank sealants
 M-FS-21232 872-10358 04
 Improved universal electrical connector
 M-FS-14741 872-10363 01
 Polymeric binder for explosives
 AEC-10062 872-10366 04
 Bondability of RTV silicon rubber
 AEC-10026 872-10367 04
 Fabrication of carbon film composites for high-strength structures
 ARC-10613 872-10423 04
- Nonmetallic impurities improve mechanical properties of vapor-deposited tungsten
 LEWIS-10800 872-10454 04
 Latch mechanism
 M-FS-21606 872-10457 08
 PTFE films with improved flexibility
 NPO-12028 872-10551 04
 Micro-scale crease-and-fold apparatus
 NPO-12029 872-10552 06
 Improved silver-zinc battery-terminal seals
 LEWIS-11615 872-10581 06
 Thermal conductivity and electrical resistivity of porous materials
 LEWIS-11754 872-10587 04
 Flexible thermal device
 M-FS-21630 872-10612 04
 Improved lip seal for rotating shafts
 LEWIS-11602 872-10672 07
 The weld-brazing metal joining process
 LANGLEY-11072 872-10683 08
 Joining porous components to solid metal structures
 LEWIS-11259 872-10754 08
- MECHANICAL SHOCK**
 Energy absorber uses expanded coiled tube
 AEC-10044 872-10239 06
 Energy absorbing system for mechanical impacts
 NPO-10671 872-10712 06
- MECHANISM**
 New full-complement ball bearing lubrication technique
 MSC-13850 872-10174 07
- MEDICAL ELECTRONICS**
 Heart simulator
 M-FS-21609 872-10131 02
 Protective encapsulation of implantable biotelemetry units
 ARC-10514 872-10301 05
 Improved ultrasonic biomedical measuring apparatus
 ARC-10597 872-10695 05
 Improved electrodes for skin contacts
 M-FS-21926 872-10698 05
- MEDICAL EQUIPMENT**
 An improved aesthesiometer
 MSC-13609 872-10032 05
 Weight simulator
 ARC-10100 872-10046 05
 Heart simulator
 M-FS-21609 872-10131 02
 Cutting thin sections of bone
 ARC-10555 872-10303 05
 Small, low cost, artificial kidney
 AEC-10011 872-10371 05
 Ultrasonic bone densitometer
 M-FS-20994 872-10450 05
 Sensor capsule for diagnosis of gastric disorders
 HQ-10767 872-10531 05
 Patient's breath controls comfort devices
 LANGLEY-11138 872-10533 05
 Tissue holder for experimental and demonstration surgery
 LEWIS-11755 872-10630 05
 A system for automatic analysis of blood pressure data for digital computer entry
 LEWIS-11751 872-10632 05
 Automated analysis of blood pressure measurements (Korotkov sound)
 MSC-13999 872-10756 05

MEDICAL SCIENCE

Improved temperature control of liquid cooling garments
MSC-13917 B72-10281 05

Cutting thin sections of bone
ARC-10555 B72-10303 05

Compression and R-wave detection of ECG/VCG data
MSC-14126 B72-10391 05

Sensor capsule for diagnosis of gastric disorders
HQ-10767 B72-10531 05

Patient's breath controls comfort devices
LANGLEY-11138 B72-10533 05

Tissue holder for experimental and demonstration surgery
LEWIS-11755 B72-10630 05

Automated analysis of blood pressure measurements (Korotkov sound)
MSC-13999 B72-10756 05

MELTING

Removal of filler material from large high energy formed parts
M-FS-16326 B72-10104 06

Noncontaminating technique for making holes in existing process systems
LEWIS-11595 B72-10385 07

Floating zone process for drawing small diameter fibers of refractory materials
LEWIS-11380 B72-10491 04

MELTING POINTS

Restartable heat pipe
ARC-10198 B72-10188 03

Research on bearing lubricants for use in a high vacuum
M-FS-22119 B72-10469 04

MEMBRANE STRUCTURES

Use of thin plastic films at cryogenic temperatures
LEWIS-11047 B72-10038 04

Cell for electrolysis of water vapor
ARC-10521 B72-10166 03

Space-suit carbon dioxide absorption system: A concept
ARC-10546 B72-10168 05

Stabilization of porous glass reverse-osmosis membranes
ARC-10646 B72-10309 04

Technique for producing wind-tunnel heat-transfer models
ARC-10658 B72-10349 08

Purification of contaminated water by filtration through porous glass
ARC-10655 B72-10412 04

Rapid evaluation of reverse-osmosis membranes
ARC-10659 B72-10413 04

Reverse-osmosis membranes by plasma polymerization
ARC-10696 B72-10710 04

MEMBRANES

Water purification by reverse osmosis using heterocyclic polymer membranes
LANGLEY-10514 B72-10230 04

An efficient, simple dialyzer
HQ-10741 B72-10522 05

MERCURY (METAL)

Mercury in the environment
AEC-10048 B72-10233 05

MERCURY ARCS

Scanning technique for tracking small eye-movements
ARC-10488 B72-10220 05

MERCURY LAMPS

Scanning technique for tracking small eye-movements
ARC-10488 B72-10220 05

MESH

Removal of filler material from large high energy formed parts
M-FS-16326 B72-10104 06

High voltage electrical insulation coating for refractory materials
LEWIS-11479 B72-10290 04

Redirecting electromagnetic beams through wide angles
ARC-10602 B72-10307 03

METABOLIC WASTES

Oxygen reclamation with solid oxide electrolytes
ARC-10487 B72-10273 03

Trace contaminant adsorption and sorbent regeneration in closed ecological systems
LANGLEY-10681 B72-10328 04

Metered oxygen supply aids treatment of domestic sewage
ARC-10024 B72-10557 05

METABOLISM

Cell for electrolysis of water vapor
ARC-10521 B72-10166 03

A continuous physiological data collector
M-FS-20835 B72-10402 05

Metered oxygen supply aids treatment of domestic sewage
ARC-10024 B72-10557 05

Breathing-metabolic simulator
HQ-10766 B72-10657 05

Metabolic simulation chamber
HQ-10776 B72-10658 05

Temperature and humidity control of simulated human breath
HQ-10778 B72-10660 05

METAL AIR BATTERIES

Improved operation of rechargeable oxygen electrodes
LEWIS-11619 B72-10479 01

METAL BONDING

The weld-brazing metal joining process
LANGLEY-11072 B72-10683 08

METAL COATINGS

High intensity solar cell radiometer
LEWIS-11549 B72-10480 01

METAL CUTTING

Optical alignment of electrodes on electrical discharge machines
XAC-09489 B72-10036 07

METAL FILMS

Beryllium thin films for resistor applications
ARC-10485 B72-10021 01

Annular objective apertures improve resolution of electron microscopes
ARC-10448 B72-10171 03

High-temperature ceramic-to-ceramic seals
ARC-10319 B72-10199 04

METAL FINISHING

Optical alignment of electrodes on electrical discharge machines
XAC-09489 B72-10036 07

METAL FOILS

Optical shutter for use in shock tubes
ARC-10516 B72-10128 03

Strain gage attachment by spot welding reduces the fatigue strength of Ti-6Al-4V, Rene 41, and Inconel X
LANGLEY-10930 B72-10339 04

Boron aluminum composite structures
M-FS-21571 B72-10386 04

Ion plating seals microcracks or porous metal components
LEWIS-11657 B72-10397 04

Insulating effectiveness of self-spacing dimpled foil
LEWIS-10941 B72-10406 04

Flexible thermal device
M-FS-21630 B72-10612 04

METAL GRINDING

Electro-chemical grinding
LANGLEY-10801 B72-10744 08

METAL IONS

Ion plating seals microcracks or porous metal components
LEWIS-11657 B72-10397 04

METAL JOINTS

The weld-brazing metal joining process
LANGLEY-11072 B72-10683 08

METAL MATRIX COMPOSITES

Composite casting demonstration
M-FS-21668 B72-10266 04

Boron aluminum composite structures
M-FS-21571 B72-10386 04

Floating zone process for drawing small diameter fibers of refractory materials
LEWIS-11380 B72-10491 04

METAL OXIDE SEMICONDUCTORS

Topological solution of bilateral switching networks
ARC-10294 B72-10055 01

Speed enhancement of complementary MOS devices
ARC-10387 B72-10184 01

Irradiation of MOS-FET devices to provide desired logic functions
GSFC-11061 B72-10719 01

Gate protective device for SOS array
HQ-10745 B72-10755 01

METAL OXIDES

Regenerable metallic oxide systems for removal of carbon dioxide: A concept
ARC-10570 B72-10420 04

METAL PLATES

Small-scale explosive welding of aluminum
LANGLEY-10941 B72-10002 04

Experimental study of surface cracks
MSC-14032 B72-10019 04

Ion plating seals microcracks or porous metal components
LEWIS-11657 B72-10397 04

Improvements of Zeyded method for calculating flutter of flat panels
M-FS-20955 B72-10399 06

METAL POLISHING

A new low-cost method for producing collimating mirrors
LEWIS-11553 B72-10513 08

Polishing is made cheaper by disposable diamond-impregnated abrasive cloth
MSC-14247 B72-10616 08

METAL POWDER

Fabrication of large ceramic electrolyte disks
ARC-10320 B72-10202 03

Improved method for producing metal-reinforced ceramics
AEC-10070 B72-10234 04

Dispersion-strengthened chromium alloy
LEWIS-10982 B72-10378 04

METAL SHEETS

A monostrain test apparatus
M-FS-24221 B72-10679 06

- Improved photoetching fabrication method
LEWIS-11268 B72-10745 08
- METAL STRIPS**
Compensating subreflector for two-reflector antennas: A concept
NPO-11503 B72-10093 06
Bileaf mechanical strain gage
ARC-10303 B72-10197 07
Thermocouple tape
LEWIS-11072 B72-10515 04
Self-deploying boom
GSFC-10566 B72-10574 07
- METAL SURFACES**
Low cost anti-galling bushings
LEWIS-11724 B72-10359 08
- METAL-METAL BONDING**
Small-scale explosive welding of aluminum
LANGLEY-10941 B72-10002 04
Bonding titanium to Rene 41 alloy
ARC-10311 B72-10041 08
Portable electron beam weld chamber
MSC-17738 B72-10338 06
- METALLIZING**
Topological solution of bilateral switching networks
ARC-10294 B72-10055 01
Prevention of cathode damage from positive ion bombardment
HQ-10688 B72-10654 03
- METALLOGRAPHY**
Composite casting demonstration
M-FS-21668 B72-10266 04
- METALLURGY**
Electron beam chemistry produces high purity metals
LEWIS-11639 B72-10439 04
- METALS**
Improved method for producing metal-reinforced ceramics
AEC-10070 B72-10234 04
Nonmetallic impurities improve mechanical properties of vapor-deposited tungsten
LEWIS-10800 B72-10454 04
- METASTABLE ATOMS**
Metastable atom probe for measuring electron beam density profiles
M-FS-21593 B72-10485 03
- METEOROID PROTECTION**
Velocity accelerator for particles
NPO-11349 B72-10082 03
- METEOROLOGICAL FLIGHT**
Wide-range dynamic pressure sensor
ARC-10263 B72-10196 03
- METEOROLOGICAL PARAMETERS**
Self-calibrating remote atmospheric electromagnetic probe and data acquisition system
M-FS-21212 B72-10665 03
- METEOROLOGY**
Tornado detector and alarm
M-FS-20915 B72-10106 01
- METHANE**
Isotropic pyrolytic carbons
ARC-10532 B72-10029 04
Simple gas chromatographic system for analysis of microbial respiratory gases
ARC-10403 B72-10207 03
Liquid methane gelled with methanol and water reduces rate of nitrogen absorption
LEWIS-11574 B72-10330 06
- Nonmetallic impurities improve mechanical properties of vapor-deposited tungsten
LEWIS-10800 B72-10454 04
Fabrication of cooled, graphite-lined structures
LEWIS-11741 B72-10593 08
Internal capillary insulation for cryogenic tanks
LEWIS-11234 B72-10626 06
- METHYL ALCOHOLS**
Stabilization of lactate dehydrogenase
ARC-10415 B72-10062 05
Promotion of dropwise condensation of ethyl alcohol, methyl alcohol, and acetone by polytetrafluoroethylene
LANGLEY-10940 B72-10115 04
Restartable heat pipe
ARC-10198 B72-10188 03
- METHYL CHLORIDE**
Free-radical solution-polymerization of trifluoronitrosomethane with tetrafluoroethylene
ARC-10567 B72-10419 04
- METHYL COMPOUNDS**
Erasable holographic medium using cis-transomerization
M-FS-22062 B72-10720 03
- MICE**
A magnetic mouse activity meter
HQ-10664 B72-10482 05
- MICHELSON INTERFEROMETERS**
Experimental study of surface cracks
MSC-14032 B72-10019 04
Liquid-helium-cooled Michelson interferometer
ARC-10554 B72-10217 03
- MICROANALYSIS**
Simple gas chromatographic system for analysis of microbial respiratory gases
ARC-10403 B72-10207 03
- MICROBIOLOGY**
Microbiological surface sampling cart
LANGLEY-11069 B72-10395 05
Metered oxygen supply aids treatment of domestic sewage
ARC-10024 B72-10557 05
Automatic agar tray inoculation device
LANGLEY-11074 B72-10637 05
- MICROCRACKS**
Ion plating seals microcracks or porous metal components
LEWIS-11657 B72-10397 04
- MICROELECTRONICS**
Guidelines for fabrication of hybrid microcircuits
M-FS-21964 B72-10393 01
Specification guidelines for hybrid microcircuits
M-FS-22090 B72-10474 01
Dual field alignment display and control for electron micropattern generator
M-FS-22118 B72-10646 01
Insulated-gate field-effect transistor strain sensor
LANGLEY-11012 B72-10731 01
- MICROFILMS**
Computer program draws three-dimensional surfaces
LEWIS-10482 B72-10253 09
- MICROHARDNESS**
Sintered diamond compacts using metallic cobalt binders
HQ-10706 B72-10519 04
- MICROMINIATURIZATION**
Heart catheter cable and connector
ARC-10406 B72-10200 05
- Microminiature gas chromatographic column
ARC-10594 B72-10306 04
Guidelines for fabrication of hybrid microcircuits
M-FS-21964 B72-10393 01
- MICROORGANISMS**
Microbiological surface sampling cart
LANGLEY-11069 B72-10395 05
Metered oxygen supply aids treatment of domestic sewage
ARC-10024 B72-10557 05
- MICROPARTICLES**
Analysis of microsize particulates
ARC-10647 B72-10565 04
- MICROPHONES**
Position indicating, rotating boom
LANGLEY-11202 B72-10395 07
Blood pressure measurement and display system
MSC-13036 B72-10334 05
- MICROPROGRAMMING**
Flexible desk top computers using Large Scale Integration (LSI) chips
M-FS-21277 B72-10112 01
- MICROROCKET ENGINES**
Final report on a study of low-density nozzle flows, with application to microthrust rockets
HQ-10761 B72-10748 06
- MICROSCOPES**
Time-lapse camera for microscopy
ARC-10423 B72-10125 05
- MICROSCOPY**
Hand-held photomicroscopy system
ARC-10468 B72-10190 03
Silver stain for electron microscopy
ARC-10661 B72-10415 05
- MICROSTRUCTURE**
High strength alloy for immediate temperature, 24 to 704 C (75 to 1300 F), applications
LEWIS-11634 B72-10344 04
Advanced alloy design technique: High temperature cobalt base superalloy
LEWIS-10436 B72-10514 04
Joining porous components to solid metal structures
LEWIS-11259 B72-10754 08
- MICROTHRUST**
Final report on a study of low-density nozzle flows, with application to microthrust rockets
HQ-10761 B72-10748 06
- MICROWAVE CIRCUITS**
Technique for refocusing, decompressing, and conditioning spent electron beams
LEWIS-11617 B72-10727 03
- MICROWAVE EMISSION**
Technique for refocusing, decompressing, and conditioning spent electron beams
LEWIS-11617 B72-10727 03
- MICROWAVE EQUIPMENT**
The thin film microwave iris
LANGLEY-10511 B72-10548 02
Design of microstrip components by computer
LANGLEY-11210 B72-10741 01
- MICROWAVE FREQUENCIES**
Properties of ionization breakdown of air at microwave frequencies and optimization of component dimensions for maximum microwave power
M-FS-21924 B72-10316 01

- The thin film microwave iris
LANGLEY-10511 B72-10548 02
 New pulsing technique may improve radar ranging systems
ARC-10600 B72-10564 02
 Technique for refocusing, decompressing, and conditioning spent electron beams
LEWIS-11617 B72-10727 03
- MICROWAVE RESONANCE**
 New pulsing technique may improve radar ranging systems
ARC-10600 B72-10564 02
- MICROWAVE SWITCHING**
 Interferometer using RF switching matrix
GSFC-11051 B72-10462 01
- MICROWAVE TUBES**
 High efficiency collector for microwave tubes
LEWIS-11192 B72-10259 03
- MIGRATION**
 Preventing oil migration in vacuum systems
GSFC-11253 B72-10129 04
- MILLING (MACHINING)**
 Twistable mold for helicopter blades
ARC-10682 B72-10432 08
- MINERALOGY**
 Improved laboratory gradiometer can be a field survey instrument
MSC-13980 B72-10001 03
 Gravitational gradiometer measures mass changes
M-FS-20814 B72-10140 03
- MINIATURE ELECTRONIC EQUIPMENT**
 Increasing the response of PIN photodiodes to the ultraviolet
ARC-10274 B72-10053 03
 Narrowband, crystal-controlled biomedical telemetry system
ARC-10708 B72-10255 01
 Miniature intermittent contact switch
ARC-10450 B72-10271 01
 An ingestible temperature-transmitter
ARC-10583 B72-10275 01
 Nonsteady flow-direction measurement
LEWIS-11499 B72-10403 06
- MIRRORS**
 Conical electromagnetic radiation flux concentrator
M-FS-21613 B72-10147 03
 Particle detection by a light-scattering technique
ARC-10384 B72-10160 03
 Cine recording ophthalmoscope
ARC-10399 B72-10189 05
 Solar sensor with autocollimator
ARC-10148 B72-10192 03
 Bileaf mechanical strain gage
ARC-10303 B72-10197 07
 Sensitive holographic detection of small aerodynamic perturbations
ARC-10422 B72-10209 03
 Liquid-helium-cooled Michelson interferometer
ARC-10554 B72-10217 03
 Scanning technique for tracking small eye-movements
ARC-10488 B72-10220 05
 Laser frequency modulation with electron plasma
AEC-10079 B72-10373 03
 An improved apochromatic wedge utilizing optical molecular contact bonding
GSFC-11082 B72-10388 03
- A new low-cost method for producing collimating mirrors
LEWIS-11553 B72-10513 08
 Particle detection with intensified laser beam
HQ-10645 B72-10516 03
 An absorption spectrum amplifier for determining gas composition
HQ-10752 B72-10524 03
 Improved transmittance measurement with a magnesium oxide coated integrating sphere
LEWIS-11840 B72-10717 04
- MIS (SEMICONDUCTORS)**
 A voltage-tunable three-terminal Gunn device
HQ-10783 B72-10518 01
 Development of chip passivated monolithic complementary MISFET circuits with beam leads
M-FS-22264 B72-10696 01
- MISSILE CONFIGURATIONS**
 Mislift and miss-drag programs
LANGLEY-10932 B72-10153 09
- MISSILE DESIGN**
 Mislift and miss-drag programs
LANGLEY-10932 B72-10153 09
- MISSION PLANNING**
 System/360 Computer Assisted Network Scheduling (CANS) System
GSFC-10909 B72-10599 09
- MIXING CIRCUITS**
 Signal to noise measurement circuit
GSFC-11239 B72-10102 01
- MOBILITY**
 Microbiological surface sampling cart
LANGLEY-11069 B72-10395 05
 Proposed semiconductor film improvement
HQ-10685 B72-10438 04
 Triangular wheel locomotion mechanism
NPO-11366 B72-10714 06
- MODELS**
 Urban air pollution dispersion model
AEC-10004 B72-10003 03
 Hydraulic modeling of heat dispersion in large lakes
AEC-10003 B72-10039 03
- MODULATION**
 Accurate measurement of telemetry performance
NPO-11457 B72-10089 02
 Vortex servovalve for fluidic or electrical input
ARC-10155 B72-10173 07
 Nondispersive infrared analyzer for specific gases in complex mixtures
ARC-10308 B72-10198 03
- MODULES**
 Interconnections for fluidic circuits
ARC-10481 B72-10164 02
- MODULUS OF ELASTICITY**
 Beryllium thin films for resistor applications
ARC-10485 B72-10021 01
 Titanium reinforced boron polyimide composite
M-FS-21916 B72-10353 04
 High strength high modulus ceramic fiber
M-FS-21266 B72-10592 04
 A monostrain test apparatus
M-FS-24221 B72-10679 06
- MOISTURE CONTENT**
 Remote measurement of the water content of snowpacks
ARC-10651 B72-10567 03
 Effect of the method of process on the control of microbial growth by water activity in foods
MSC-14234 B72-10732 05
- MOLDING MATERIALS**
 New polyimide polymer has excellent processing characteristics with improved thermo-oxidative and hydrolytic stabilities
LEWIS-11323 B72-10175 04
 High strength, medium density molded foam
AEC-10053 B72-10235 04
 New compression molding process of thermosetting plastic compounds
LANGLEY-1078 B72-10356 08
- MOLDS**
 Twistable mold for helicopter blades
ARC-10682 B72-10432 08
- MOLECULAR CHAINS**
 Process for synthesizing and formulating condensed ring polymers
LANGLEY-10423 B72-10473 04
- MOLECULAR FLOW**
 Sonic limitations and startup problems of heat pipes
AEC-10036 B72-10368 03
- MOLECULAR STRUCTURE**
 Low-void polyimide resins for autoclave processing
LEWIS-11665 B72-10728 04
- MOLECULAR WEIGHT**
 Continuous monitor for gas ratios in a mixture
LEWIS-11095 B72-10229 05
 Separation of gas mixtures by centrifugation
ARC-10449 B72-10270 03
 Process for synthesizing and formulating condensed ring polymers
LANGLEY-10423 B72-10473 04
- MOLECULES**
 Erasable holographic medium using cis-trans isomerization
M-FS-22062 B72-10720 03
- MOLTEN SALT ELECTROLYTES**
 Al/C12 molten salt battery
HQ-10696 B72-10527 01
- MOLYBDENUM**
 High voltage electrical insulation coating for refractory materials
LEWIS-11479 B72-10290 04
- MOLYBDENUM ALLOYS**
 Common bearing material has highest fatigue life at moderate temperature
LEWIS-11592 B72-10382 04
- MOLYBDENUM DISULFIDES**
 Inorganic glass ceramic slip rings
M-FS-20711 B72-10313 04
 Research on bearing lubricants for use in a high vacuum
M-FS-22119 B72-10469 04
- MOLYBDENUM OXIDES**
 Acousto-optic filter for electronic laser tuning
HQ-10715 B72-10520 03
- MOMENTUM**
 Program for calculating laminar and turbulent boundary layers in arbitrary pressure gradients
LEWIS-11097 B72-10111 09

MONITORS

- Software control for large scale on-board checkout: A concept
 MSC-13977 B72-10015 09
 Remote sensing X-ray spectrometer
 MSC-13978 B72-10016 03
 Control of acceleration in sine/random vibration tests
 NPO-11482 B72-10091 02
 Solar sensor with autocollimator
 ARC-10148 B72-10192 03
 Simple dynamic electromagnetic radiation detector
 LEWIS-11159 B72-10227 03
 Filter cassette for high volume air sampler
 LEWIS-11469 B72-10379 03
 Roll function in a flight simulator
 ARC-10557 B72-10417 02
 Acoustic emission used as weld quality monitor
 AEC-10018 B72-10427 08
 An absentee monitoring device
 KSC-10668 B72-10578 01
 Acoustical analysis system
 GSFC-11087 B72-10751 02
- MONOCHROMATIZATION**
 Optical device for producing color line scan display from monochrome oscilloscope traces
 LANGLEY-10896 B72-10375 03
- MONOCHROMATORS**
 Rotary shutter mechanism contains optical elements
 GSFC-11244 B72-10387 03
 An improved apochromatic wedge utilizing optical molecular contact bonding
 GSFC-11082 B72-10388 03
 Helium window for shock-tube monochromators
 NPO-11852 B72-10556 03
- MONOMERS**
 Polymeric coatings using electronic excitation
 HQ-10698 B72-10257 04
 Free-radical solution-polymerization of trifluoronitrosomethane with tetrafluoroethylene
 ARC-10567 B72-10419 04
- MONOPROPELLANTS**
 Propellant-powered actuator for gas generators
 ARC-10484 B72-10008 03
 Integrated monopropellant thruster
 NPO-12004 B72-10502 06
- MORPHOLOGY**
 Plasma calcining of pigment particles for thermal control coatings
 M-FS-21267 B72-10320 04
- MOSAICS**
 Piezoelectric transducer mosaic
 ARC-10509 B72-10014 01
 Solid state television camera has no imaging tube
 M-FS-21553 B72-10254 02
- MOTION PICTURES**
 Cine recording ophthalmoscope
 ARC-10399 B72-10189 05
 Hand-held photomicroscopy system
 ARC-10468 B72-10190 03
- MOTORS**
 Graph for locked rotor current
 MSC-15703 B72-10075 06
- MOUNTING**
 Solar sensor with autocollimator
 ARC-10148 B72-10192 03

- Quick-donning backpack harness
 LANGLEY-10102 B72-10641 05
- MTBF**
 Mathematical techniques for estimating operational readiness of complex systems
 MSC-17694 B72-10335 09
- MULTILAYER INSULATION**
 Method of determining thermal conductivity in multi-layer insulation systems
 M-FS-20213 B72-10154 03
 Superior cryogenic insulation developed
 M-FS-21560 B72-10187 04
 Insulating effectiveness of self-spacing dimpled foil
 LEWIS-10941 B72-10406 04
 Flexible thermal device
 M-FS-21630 B72-10612 04
- MULTIPLE OUTPUT PROGRAMS**
 Topological solution of bilateral switching networks
 ARC-10294 B72-10055 01
- MULTIPLEXING**
 Flexible desk top computers using Large Scale Integration (LSI) chips
 M-FS-21277 B72-10112 01
 Low distortion automatic phase control circuit
 M-FS-21671 B72-10682 02
 Insulated-gate field-effect transistor strain sensor
 LANGLEY-11012 B72-10731 01
- MULTIPROGRAMMING**
 Integrated multi-path program analysis and cost technique (IMPACT)
 M-FS-21880 B72-10676 09
- MULTISPECTRAL BAND SCANNERS**
 Analog table look-up device identifies unknown terrain
 MSC-13816 B72-10033 03
- MULTIVIBRATORS**
 High noise immunity one shot
 ARC-10137 B72-10047 01
 Crystal-controlled multivibrator
 NPO-11627 B72-10155 01
 An ingestible temperature-transmitter
 ARC-10583 B72-10275 01
- MYLAR (TRADEMARK)**
 Lightweight, broad-band spectrum analyzer
 ARC-10405 B72-10060 01
 Method of determining thermal conductivity in multi-layer insulation systems
 M-FS-20213 B72-10154 03
 Superior cryogenic insulation developed
 M-FS-21560 B72-10187 04
 Liquid-helium-cooled Michelson interferometer
 ARC-10554 B72-10217 03
 Improved high-performance shock tube
 NPO-11885 B72-10242 03
 Improved electrodes for skin contacts
 M-FS-21926 B72-10698 05

N

N-P-N JUNCTIONS

- Overlap diffusion for increasing phototransistor dynamic range
 M-FS-20407 B72-10347 01
 Gate protective device for SOS array
 HQ-10745 B72-10755 01

NATURAL GAS

- Computer program for natural gas flow through nozzles
 LEWIS-11534 B72-10362 09
- NAVIGATION**
 Software control for large scale on-board checkout: A concept
 MSC-13977 B72-10015 09
- NAVIGATION AIDS**
 A simple dead-reckoning navigational system
 M-FS-21165 B72-10409 02
- NEAR INFRARED RADIATION**
 Enhanced Lamb dip for absolute laser frequency stabilization
 HQ-10695 B72-10481 02
- NEON**
 New reaction tester accurate within 56 microseconds
 MSC-13604 B72-10031 05
 A sensitive image intensifier which uses inert gas
 LRL-10024 B72-10312 03
- NETWORK ANALYSIS**
 Standardization and qualification of computer programs for circuit design
 M-FS-21537 B72-10142 09
- NEUROLOGY**
 New reaction tester accurate within 56 microseconds
 MSC-13604 B72-10031 05
- NEUTRON ABSORBERS**
 Boron-10 loaded inorganic shielding material
 M-FS-22280 B72-10740 04
- NEUTRON BEAMS**
 Simple dynamic electromagnetic radiation detector
 LEWIS-11159 B72-10227 03
- NEUTRON DIFFRACTION**
 A liquid radiation detector with high spatial resolution
 MSC-13965 B72-10034 03
- NEUTRONS**
 Neutron radiographic viewing system
 M-FS-22024 B72-10468 02
 Boron-10 loaded inorganic shielding material
 M-FS-22280 B72-10740 04
- NEWTONIAN FLUIDS**
 Parallel-plate viscometer
 NPO-11387 B72-10700 03
- NICKEL**
 Wide-range dynamic pressure sensor
 ARC-10263 B72-10196 03
 Radiation-induced nickel deposits
 LEWIS-10965 B72-10456 04
- NICKEL ALLOYS**
 Bonding titanium to Rene 41 alloy
 ARC-10311 B72-10041 08
 Advanced protective coating for superalloys
 LEWIS-11473 B72-10150 04
 A protective coating for stainless steel
 LEWIS-11267 B72-10256 04
 Joining precipitation-hardened nickel-base alloys by friction welding
 LEWIS-11514 B72-10288 08
 High strength alloy for immediate temperature, 24 to 704 C (75 to 1300 F), applications
 LEWIS-11634 B72-10344 04
 Advanced alloy design technique: High temperature cobalt base superalloy
 LEWIS-10436 B72-10514 04
 Electro-chemical grinding
 LANGLEY-10801 B72-10744 08

Improved photoetching fabrication method
LEWIS-11268 B72-10745 08

NICKEL OXIDES
Electrodes for sealed secondary batteries
ARC-10238 B72-10050 02

NICKEL PLATE
Sputter etching of hemispherical bearings
HQ-10712 B72-10534 08

NIMBUS SATELLITES
Program to produce horizontal stereographic print maps from Nimbus HRIR data
GSFC-11397 B72-10606 09

NIOBIUM
New twisted intermetallic compound superconductor: A concept
LEWIS-11015 B72-10282 04

NIOBIUM ALLOYS
Insulating effectiveness of self-spacing dimpled foil
LEWIS-10941 B72-10406 04

NIOBIUM COMPOUNDS
Alternating current losses in superconducting coils
M-FS-21129 B72-10360 03
Magnets with stabilized conductors
HQ-10727 B72-10465 03

NITRATES
Silver stain for electron microscopy
ARC-10661 B72-10415 05

NITRIC ACID
Covalent bonding of antibodies of polystyrene latex beads: A concept
MSC-13906 B72-10006 05

NITROGEN
Pulsed high-power arc heater with improved cathode and triggering mechanism
ARC-10173 B72-10048 03
Glass technology involved in the manufacture of magnetometer components
GSFC-11283 B72-10132 03
Aircrew oxygen system
ARC-10247 B72-10195 05
Diatomic infrared gasdynamic laser permits selection of wavelengths
ARC-10370 B72-10206 03
Simple gas chromatographic system for analysis of microbial respiratory gases
ARC-10403 B72-10207 03
Counter lung
ARC-10248 B72-10219 05
Oxygen carrier for gas chromatographic analysis of inert gases in propellants
ARC-10574 B72-10249 04
Small turbine-type flowmeters for liquid hydrogen
LEWIS-11535 B72-10331 06
Nonflammable potting, encapsulating and/or conformal coating compound
MSC-13499 B72-10337 04
Evaluating foam heterogeneity
AEC-10046 B72-10365 04
Proposed semiconductor film improvement
HQ-10685 B72-10438 04
Temperature control of a cryogenic bath
HQ-10788 B72-10532 03
Improved sampling of compressed gases for condensable hydrocarbon content
KSC-10304 B72-10540 06

NITROGEN COMPOUNDS
Titanium alloy stress corrosion cracking in presence of dinitrogen tetroxide
M-FS-21113 B72-10321 04

NITROGEN OXIDES
Fluidized-bed combustion reduces atmospheric pollutants
AEC-10085 B72-10431 04

NITROGEN POLYMERS
Functionally terminated liquid nitroso fluorocarbon terpolymers
M-FS-21539 B72-10493 04

NITROGEN TETROXIDE
Leaching of nitroso rubber material removes uncured polymer
MSC-17185 B72-10449 04

NITROSO COMPOUNDS
Leaching of nitroso rubber material removes uncured polymer
MSC-17185 B72-10449 04

NOBLE METALS
Long-term drift of thermocouples at 1600 K
LEWIS-11471 B72-10176 01
High-temperature ceramic-to-ceramic seals
ARC-10319 B72-10199 04
Research on bearing lubricants for use in a high vacuum
M-FS-22119 B72-10469 04

NOISE (SOUND)
Loudness (annoyance), prediction procedure for steady sounds
LEWIS-11761 B72-10579 05

NOISE GENERATORS
Evaluation of jet engine noise
M-FS-21416 B72-10263 03

NOISE INTENSITY
Acoustic spectral analysis and testing techniques
NPO-11554 B72-10341 03

NOISE REDUCTION
Reduction of fan noise: A concept
ARC-10312 B72-10040 06
Evaluation of jet engine noise
M-FS-21416 B72-10263 03
Reduction of noise in gyro outputs
NPO-11603 B72-10743 06

NONDESTRUCTIVE TESTS
Method of determining thermal conductivity in multi-layer insulation systems
M-FS-20213 B72-10154 03
Nondestructive-test standards for evaluation of fiber-reinforced composites
M-FS-21288 B72-10157 04
Nondestructive testing of microtab welds
ARC-10176 B72-10296 02
Simple non-destructive tests for electroexplosive devices
NPO-11563 B72-10315 01
Composite mobile system for holographic nondestructive testing
M-FS-21704 B72-10351 03
Nondestructive testing for braze voids in thin panels by use of special coatings
LANGLEY-10486 B72-10374 08
Deflection resistance indicator
M-FS-24010 B72-10401 04
Acoustic emission used as weld quality monitor
AEC-10018 B72-10427 08
Neutron radiographic viewing system
M-FS-22024 B72-10468 02
Magnetic circuitry mutual coupling probe
M-FS-21664 B72-10535 02

Analysis of microsize particulates
ARC-10647 B72-10565 04
Spark ultrasonic transducer
M-FS-21233 B72-10594 04

NONFLAMMABLE MATERIALS
Halogenation of microcapsule walls
ARC-10410 B72-10161 04
Nonflammable potting, encapsulating and/or conformal coating compound
MSC-13499 B72-10337 04

NONLINEAR EQUATIONS
Algorithm for Liapunov stability analysis
ARC-10498 B72-10023 09
Carbon monoxide oxidation rates computed for automobile thermal reactor conditions
LEWIS-11638 B72-10137 04
Computer program for calculation of complex chemical equilibrium compositions
LEWIS-11714 B72-10718 09

NONLINEAR FILTERS
High voltage protection network
ARC-10197 B72-10119 02

NONLINEAR SYSTEMS
Algorithm for Liapunov stability analysis
ARC-10498 B72-10023 09

NONLINEARITY
Electronic switching circuit uses complementary non-linear components
AEC-10060 B72-10236 01

NORMAL DENSITY FUNCTIONS
Device for measuring electric fields
ARC-10164 B72-10148 03
A study of the power spectral density of an FM signal
M-FS-21070 B72-10361 02

NOSE CONES
Water impact loads
M-FS-21955 B72-10621 09

NOZZLE DESIGN
Ejector nozzle with massive blowing
ARC-10621 B72-10693 06

NOZZLE FLOW
Design of two-dimensional sharp-edged-throat supersonic nozzle with boundary-layer correction
LEWIS-11636 B72-10070 09
Wide angle solar sensor
NPO-11341 B72-10080 01
Computer program for natural gas flow through nozzles
LEWIS-11534 B72-10362 09
Air assist fuel nozzle reduces aircraft gas turbine engine emissions at idle operation
LEWIS-11512 B72-10434 07
Ejector nozzle with massive blowing
ARC-10621 B72-10693 06

NOZZLE GEOMETRY
Design of two-dimensional sharp-edged-throat supersonic nozzle with boundary-layer correction
LEWIS-11636 B72-10070 09

NOZZLES
Dynamic valve to supply constant total thrust to two orifice jets
ARC-10239 B72-10120 07

NUCLEAR MAGNETIC RESONANCE
Wide-range nuclear magnetic resonance detector
LEWIS-11513 B72-10478 03

NUCLEAR POWER PLANTS

Computer program for afterheat temperature distribution for mobile nuclear power plant

LEWIS-11693 B72-10634 09

NUCLEAR REACTORS

Simple dynamic electromagnetic radiation detector

LEWIS-11159 B72-10227 03

NUCLEATION

Nonmetallic impurities improve mechanical properties of vapor-deposited tungsten

LEWIS-10800 B72-10454 04

NUMERICAL ANALYSIS

Prediction of ducted fan performance

ARC-10615 B72-10064 09

Selecting digital filters

M-FS-20933 B72-10156 01

Flow equation for porous plug and capillary tube flow restrictors

GSFC-11387 B72-10289 06

Sunspot analysis and prediction

M-FS-21724 B72-10317 03

Mathematical techniques for estimating operational readiness of complex systems

MSC-17694 B72-10335 09

Cavitation data for hydraulic equipment

LEWIS-11642 B72-10384 07

Variable boundary II heat conduction

LEWIS-10679 B72-10444 09

Equations to assess the impact resistance of fiber composites

LEWIS-11486 B72-10503 04

High speed sequential decoder

ARC-10657 B72-10568 09

Study of hot hardness characteristics of tool steels

LEWIS-11785 B72-10583 04

Thermal conductivity and electrical resistivity of porous materials

LEWIS-11754 B72-10587 04

Significance arithmetic experimental package (SIGPAC)

GSFC-11499 B72-10600 09

Computer program analyzes and monitors electrical power systems (POSIMO)

GSFC-11505 B72-10610 09

Spectral analysis of multiple time series

M-FS-18859 B72-10614 09

Method for nonlinear exponential regression analysis

M-FS-21965 B72-10622 09

Numerical solution of potential flow problems in terms of flux components

M-FS-21751 B72-10667 09

Mathematical analysis for the performance assessment of space communication parameters, IBM-360 version

GSFC-11523 B72-10675 09

Analysis of circuits including magnetic cores (MTRAC)

NPO-11494 B72-10724 02

NUMERICAL INTEGRATION

Errors in hybrid computers

M-FS-21289 B72-10141 02

NUTS (FASTENERS)

Specimen for high-temperature tensile tests

ARC-10531 B72-10028 04

Micro regulating ball valve

ARC-10295 B72-10121 06

Positive fast sealing union connections

LEWIS-11290 B72-10133 06

Perload indicating turnbuckle

M-FS-21488 B72-10355 07

NYLON (TRADEMARK)

Method of determining thermal conductivity in multi-layer insulation systems

M-FS-20213 B72-10154 03

Superior cryogenic insulation

developed

M-FS-21560 B72-10187 04

O

O RING SEALS

Improved elastomer for use with oxygen difluoride

ARC-10528 B72-10027 04

High speed, self-acting, face-contact shaft seal has low leakage and very low wear

LEWIS-11598 B72-10114 07

Positive fast sealing union connections

LEWIS-11290 B72-10133 06

Fill and vent quick disconnect

M-FS-21822 B72-10645 07

Squib-operated disconnect

NPO-11330 B72-10713 06

OAO

Algorithm for Liapunov stability analysis

ARC-10498 B72-10023 09

OFF-ON CONTROL

Adaptive position control loop

ARC-10255 B72-10052 02

OILS

Preventing oil migration in vacuum systems

GSFC-11253 B72-10129 04

Efficient baffle prevents oil backstreaming in diffusion pumps

LRL-10025 B72-10475 07

Improved method for reclaiming vacuum diffusion pump oil

LEWIS-11647 B72-10511 04

Preparation of stable colloidal dispersions in fluorinated liquids

HQ-10580 B72-10529 04

OPACITY

Nematic liquid crystals for optical shutters: A concept

NPO-11367 B72-10083 03

OPERATING TEMPERATURE

Common bearing material has highest fatigue life at moderate temperature

LEWIS-11592 B72-10382 04

OPERATIONS RESEARCH

Mathematical techniques for estimating operational readiness of complex systems

MSC-17694 B72-10335 09

OPERATOR PERFORMANCE

Restraint and locomotion aid

ARC-10153 B72-10558 06

OPTICAL COMMUNICATION

Transmission of optical frequencies with minimal losses

HQ-10541 B72-10389 03

Efficient wire-grid duplexer-polarized for CO₂ lasers

GSFC-11403 B72-10440 03

OPTICAL EQUIPMENT

Optical alignment of electrodes on electrical discharge machines

XAC-09489 B72-10036 07

Nematic liquid crystals for optical shutters: A concept

NPO-11367 B72-10083 03

Optical shutter for use in shock tubes

ARC-10516 B72-10128 03

Annular objective apertures improve resolution of electron microscopes

ARC-10448 B72-10171 03

A dual-beam actinic light source for photosynthesis research

ARC-10351 B72-10205 05

Optical enhancement of sensitivity in laser Doppler velocity systems

ARC-10653 B72-10310 03

Rotary shutter mechanism contains optical elements

GSFC-11244 B72-10387 03

Roll function in a flight simulator

ARC-10557 B72-10417 02

Fabrication of carbon film composites for high-strength structures

ARC-10613 B72-10423 04

Neutron radiographic viewing system

M-FS-22024 B72-10468 02

Particle detection with intensified laser beam

HQ-10645 B72-10516 03

Assessment of water pollution by airborne measurement of chlorophyll

ARC-10648 B72-10566 04

Oscillation of laser-beam intensity as observed with beam splitters

ARC-10694 B72-10572 03

Slitting flat conductor cables with the single cutting edge slitter

M-FS-20111 B72-10575 07

A transmitting and reflecting diffuser for ultraviolet light

LANGLEY-10385 B72-10611 03

Self-calibrating remote atmospheric electromagnetic probe and data acquisition system

M-FS-21212 B72-10665 03

Two-speed deflection system for electron micropattern generator

M-FS-22117 B72-10668 02

An optical quality meter suitable for cryogenic liquids

LEWIS-11814 B72-10686 06

OPTICAL FILTERS

Solar experiment alignment system

ARC-10471 B72-10020 03

Acousto-optic filter for electronic laser tuning

HQ-10715 B72-10520 03

Improved optical filters for automated visual inspection

HQ-10720 B72-10521 03

OPTICAL HETERODYNING

Optical enhancement of sensitivity in laser Doppler velocity systems

ARC-10653 B72-10310 03

OPTICAL MICROSCOPES

Alignment microscope for rotating laser scanner

MSC-14118 B72-10435 03

OPTICAL PATHS

Rotary shutter mechanism contains optical elements

GSFC-11244 B72-10387 03

OPTICAL POLARIZATION

Efficient wire-grid duplexer-polarized for CO₂ lasers

GSFC-11403 B72-10440 03

OPTICAL PROPERTIES

- Performance of silicon solar cell assemblies
NPO-11847 B72-10186 01
- A sensitive image intensifier which uses inert gas
LRL-10024 B72-10312 03
- Transmission of optical frequencies with minimal losses
HQ-10541 B72-10389 03
- A transmitting and reflecting diffuser for ultraviolet light
LANGLEY-10385 B72-10611 03
- A bi-stable optical device
HQ-10701 B72-10655 03
- Parallel-plate viscometer
NPO-11387 B72-10700 03
- Improved zinc oxide thermal control coatings
NPO-11139 B72-10711 04

OPTICAL THICKNESS

- Unsupported thin film beam splitter
GSFC-10525 B72-10471 02

OPTICAL TRACKING

- Atmospheric density variations related to internal gravity waves
M-FS-21637 B72-10143 03

OPTICS

- Cine recording ophthalmoscope
ARC-10399 B72-10189 05
- Hand-held photomicroscopy system
ARC-10468 B72-10190 03
- Projections of scan patterns on human retina
ARC-10181 B72-10193 05

OPTIMIZATION

- Optimization technique for problems with an inequality constraint
ARC-10522 B72-10222 09
- Properties of ionization breakdown of air at microwave frequencies and optimization of component dimensions for maximum microwave power
M-FS-21924 B72-10316 01
- Design criteria monograph on turbopump inducers
LEWIS-11824 B72-10635 08
- An approach to real-time process control of semiconductor wire-bonding
M-FS-21558 B72-10644 08
- Optimization of fluid line sizes with pumping power penalty IBM-360 computer program
MSC-17930 B72-10722 06
- Optimizing designs of two-level factorial experiments given partial prior information (NAMER)
LEWIS-11708 B72-10726 09

ORGANIC CHEMISTRY

- Improved thermally conducting electron transfer polymers
GSFC-11304 B72-10291 04
- Polyimide foams provide thermal insulation and fire protection
ARC-10464 B72-10300 04
- Synthesis of temperature and solvent-resistant polymers
M-FS-20848 B72-10342 04
- Thermally resistant polymers for fuel tank sealants
M-FS-21232 B72-10358 04
- Polymeric binder for explosives
AEC-10062 B72-10366 04
- Bondability of RTV silicon rubber
AEC-10026 B72-10367 04

- Chemical modification of poly(p-phenylene) for use in ablative compositions
ARC-10135 B72-10451 04
- Process for synthesizing and formulating condensed ring polymers
LANGLEY-10423 B72-10473 04

ORGANIC COMPOUNDS

- A method of isolating organic compounds present in water
AEC-10010 B72-10044 04
- Initiation of polymerization by tetrabutylammonium p-lithiophenoxide
ARC-10553 B72-10223 04
- Improved thermally conducting electron transfer polymers
GSFC-11304 B72-10291 04
- Polymeric binder for explosives
AEC-10062 B72-10366 04
- Bondability of RTV silicon rubber
AEC-10026 B72-10367 04

ORGANIC MATERIALS

- Composite casting demonstration
M-FS-21668 B72-10266 04
- Synthesis of temperature and solvent-resistant polymers
M-FS-20848 B72-10342 04
- Purification of contaminated water by filtration through porous glass
ARC-10655 B72-10412 04
- Nonflammable and abrasion resistant coating process for glass fibers
MSC-14024 B72-10445 08
- ORGANOMETALLIC COMPOUNDS
- Proposed semiconductor film improvement
HQ-10685 B72-10438 04

ORGANS

- Improved ultrasonic biomedical measuring apparatus
ARC-10597 B72-10695 05

ORIFICE FLOW

- Dispersion ring reduces injector orifice-to-orifice flow variation
MSC-15953 B72-10117 07

ORIFICES

- Pressure sensitive gas flow meter
ARC-10219 B72-10049 06
- Dynamic valve to supply constant total thrust to two orifice jets
ARC-10239 B72-10120 07
- Micro regulating ball valve
ARC-10295 B72-10121 06
- An economical vent cover
M-FS-20692 B72-10348 07

ORTHOGONAL FUNCTIONS

- Program for the transient response of ablating axisymmetric bodies including the effects of shape change
LANGLEY-11049 B72-10068 09

ORTHOGONALITY

- Optical bonding agents for severe environments
ARC-10459 B72-10063 04

ORTHOPEDICS

- Dc motor proportional control system for orthotic devices
M-FS-21573 B72-10617 05

ORTHOTROPIC CYLINDERS

- New compression molding process of thermosetting plastic compounds
LANGLEY-10782 B72-10356 08

ORTHOTROPISM

- Program for the transient response of ablating axisymmetric bodies including the effects of shape change
LANGLEY-11049 B72-10068 09

OSCILLATING FLOW

- Microresonator for damping flow oscillations
M-FS-18401 B72-10105 06

OSCILLATION DAMPERS

- Microresonator for damping flow oscillations
M-FS-18401 B72-10105 06

OSCILLATIONS

- Vibrating ribbon bolometer: A concept
XAC-10768 B72-10170 03
- Nondispersive infrared analyzer for specific gases in complex mixtures
ARC-10308 B72-10198 03
- Control of oscillations in a discharge circuit
ARC-10556 B72-10304 01
- A voltage-tunable three-terminal Gunn device
HQ-10783 B72-10518 01
- Thermal induced flow oscillations in heat exchangers for supercritical fluids
M-FS-21262 B72-10598 06

OSCILLATORS

- Implanted telemeter for electrocardiogram and body temperature
XAC-08505 B72-10035 05
- Improved device measures performance of batteries under load
ARC-10252 B72-10051 02
- Frequency switch keyed oscillator
ARC-10412 B72-10124 01
- Heart simulator
M-FS-21609 B72-10131 02
- Fluidic ignition detection
M-FS-21498 B72-10158 06
- Continuous monitor for gas ratios in a mixture
LEWIS-11095 B72-10229 05
- Very high speed direct-readout, control and recording system
M-FS-20658 B72-10442 02
- Enhanced Lamb dip for absolute laser frequency stabilization
HQ-10695 B72-10481 02
- A voltage-tunable three-terminal Gunn device
HQ-10783 B72-10518 01
- A compact battery powered digital thermometer
MSC-14084 B72-10545 02
- Remote measurement of the water content of snowpacks
ARC-10651 B72-10567 03
- Oscillating hot-wire anemometer
NPO-11634 B72-10609 02

OSCILLOGRAPHS

- Parallel-plate viscometer
NPO-11387 B72-10700 03

OSCILLOSCOPES

- Analog table look-up device identifies unknown terrain
MSC-13816 B72-10033 03
- Improved system for measuring speed of rotating machinery
ARC-10413 B72-10179 07
- Simple non-destructive tests for electroexplosive devices
NPO-11563 B72-10315 01
- Optical device for producing color line scan display from monochrome oscilloscope traces
LANGLEY-10896 B72-10375 03
- Simple turbine balancing test apparatus
LEWIS-11658 B72-10377 07

- Amplifier for signal from thin film transducer
LEWIS-11494 B72-10463 01
Wideband wattmeter for instant measurement of real power
LEWIS-11698 B72-10737 01
- OSMOSIS**
Water purification by reverse osmosis using heterocyclic polymer membranes
LANGLEY-10514 B72-10230 04
Stabilization of porous glass reverse-osmosis membranes
ARC-10646 B72-10309 04
Rapid evaluation of reverse-osmosis membranes
ARC-10659 B72-10413 04
Reverse-osmosis membranes by plasma polymerization
ARC-10696 B72-10710 04
- OUTER PLANETS EXPLORERS**
Radioisotope thermionic power supply for spacecraft
ARC-10438 B72-10212 03
- OUTGASSING**
Optical bonding agents for severe environments
ARC-10459 B72-10063 04
Laboratory leak tester provides high sensitivity
AEC-10042 B72-10240 03
Baffle to confine glow discharge in ion pump
M-FS-21575 B72-10324 03
- OUTLETS**
Cryogenic gel flow viscometer
ARC-10523 B72-10180 03
- OUTPUT**
Third order digital-to-analog converter
MSC-12458 B72-10030 02
A differential ECG amplifier with single-ended output
ARC-10411 B72-10061 05
Vidicon storage tube electrical input/output
MSC-14053 B72-10285 02
A manually set magnetic wire counter
AEC-10039 B72-10369 01
Universal dc signal conditioner
MSC-17526 B72-10510 02
An improved learning decoder
MSC-14070 B72-10573 02
- OVERPRESSURE**
Ferromagnetic-fluid logic devices
ARC-10503 B72-10011 06
- OVERVOLTAGE**
Photomultiplier blanking circuit
ARC-10593 B72-10561 01
- OXIDATION**
Carbon monoxide oxidation rates computed for automobile thermal reactor conditions
LEWIS-11638 B72-10137 04
Hydrogen eliminator
ARC-10408 B72-10208 03
Metabolic simulation chamber
HQ-10776 B72-10658 05
- OXIDATION RESISTANCE**
Advanced protective coating for superalloys
LEWIS-11473 B72-10150 04
New polyimide polymer has excellent processing characteristics with improved thermo-oxidative and hydrolytic stabilities
LEWIS-11323 B72-10175 04
A protective coating for stainless steel
LEWIS-11267 B72-10256 04
- Dispersion-strengthened chromium alloy
LEWIS-10982 B72-10378 04
- OXIDES**
Oxygen-layer structure improves lithium-doped silicon solar cells
NPO-11403 B72-10085 03
Improved method for producing metal-reinforced ceramics
AEC-10070 B72-10234 04
Titanium alloy stress corrosion cracking in presence of dinitrogen tetroxide
M-FS-21113 B72-10321 04
High strength high modulus ceramic fiber
M-FS-21266 B72-10592 04
Boron-10 loaded inorganic shielding material
M-FS-22280 B72-10740 04
- OXIDIZERS**
Combination throttle and shutoff valve
M-FS-21513 B72-10287 07
Remote control flare stack igniter for combustible gases
M-FS-21675 B72-10352 07
Oxygen plasmas used to synthesize superoxides
ARC-10686 B72-10570 04
- OXIMETRY**
Ear oximeter-transducer monitors four physiological responses
XAC-05422 B72-10224 05
- OXYGEN**
Oxygen pressure control for electrolysis cells
ARC-10250 B72-10074 02
Oxygen-layer structure improves lithium-doped silicon solar cells
NPO-11403 B72-10085 03
Low temperature catalytic ignition of hydrogen and oxygen
ARC-10492 B72-10127 03
Fluidic ignition detection
M-FS-21498 B72-10158 06
Cell for electrolysis of water vapor
ARC-10521 B72-10166 03
Simple gas chromatographic system for analysis of microbial respiratory gases
ARC-10403 B72-10207 03
Hydrogen eliminator
ARC-10408 B72-10208 03
Counter lung
ARC-10248 B72-10219 05
Silver-chlorine fuel cell: A concept
ARC-10491 B72-10221 03
Polymeric coatings using electronic excitation
HQ-10698 B72-10257 04
Oxygen reclamation with solid oxide electrolytes
ARC-10487 B72-10273 03
Balanced-bellows spirometer
XAC-01547 B72-10279 05
Titanium alloy stress corrosion cracking in presence of dinitrogen tetroxide
M-FS-21113 B72-10321 04
Nonflammable potting, encapsulating and/or conformal coating compound
MSC-13499 B72-10337 04
Failure in glass
AEC-10088 B72-10364 04
Evaluating foam heterogeneity
AEC-10046 B72-10365 04
Metered oxygen supply aids treatment of domestic sewage
ARC-10024 B72-10557 05
- Propulsion sizing program
MSC-14016 B72-10605 09
Breathing-metabolic simulator
HQ-10766 B72-10657 05
Metabolic simulation chamber
HQ-10776 B72-10658 05
An efficient prebreathing apparatus for humans during decompression
MSC-14151 B72-10690 05
- OXYGEN ANALYZERS**
Ear oximeter-transducer monitors four physiological responses
XAC-05422 B72-10224 05
A continuous physiological data collector
M-FS-20835 B72-10402 05
- OXYGEN BREATHING**
Aircrew oxygen system
ARC-10247 B72-10195 05
- OXYGEN COMPOUNDS**
Improved intensifying screen reduces X-ray exposure
AEC-10090 B72-10232 03
- OXYGEN CONSUMPTION**
Improved temperature control of liquid cooling garments
MSC-13917 B72-10281 05
- OXYGEN FLUORIDES**
Improved elastomer for use with oxygen difluoride
ARC-10528 B72-10027 04
Oxygen carrier for gas chromatographic analysis of inert gases in propellants
ARC-10574 B72-10249 04
Thermal control for storage of cryogenic propellants in a common-bulkhead tank: A concept
ARC-10558 B72-10276 03
- OXYGEN PRODUCTION**
Oxygen reclamation with solid oxide electrolytes
ARC-10487 B72-10273 03
Catalyst for sodium chlorate decomposition
ARC-10584 B72-10305 04
- OXYGEN REGULATORS**
Aircrew oxygen system
ARC-10247 B72-10195 05
- OXYGEN SUPPLY EQUIPMENT**
Aircrew oxygen system
ARC-10247 B72-10195 05
Controlled flow assembly
M-FS-21716 B72-10404 07

P

- P-I-N JUNCTIONS**
Increasing the response of PIN photodiodes to the ultraviolet
ARC-10274 B72-10053 03
- P-N JUNCTIONS**
Oxygen-layer structure improves lithium-doped silicon solar cells
NPO-11403 B72-10085 03
Introduction of lithium into the front surface of solar cells
NPO-11404 B72-10086 02
A voltage-tunable three-terminal Gunn device
HQ-10783 B72-10518 01
- P-N-P JUNCTIONS**
Overlap diffusion for increasing phototransistor dynamic range
M-FS-20407 B72-10347 01

PACKAGES

Guidelines for fabrication of hybrid microcircuits
M-FS-21964 B72-10393 01

PACKAGING

Speed enhancement of complementary MOS devices
ARC-10387 B72-10184 01
Phase-change materials handbook
M-FS-22064 B72-10464 04

PACKINGS (SEALS)

Leak decay method of helium bombardment leak testing
M-FS-24109 B72-10381 06
High-speed, self-acting shaft seal (circumferential type)
LEWIS-11274 B72-10447 07
Computer program for calculating the temperature field of face seals
LEWIS-11110 B72-10483 09
Improved silver-zinc battery-terminal seals
LEWIS-11615 B72-10581 06
Improved lip seal for rotating shafts
LEWIS-11602 B72-10672 07

PAINTS

Devolatilization of polymer resins
GSFC-11358 B72-10280 04
Investigation of environmental effects on coatings for thermal control
M-FS-21932 B72-10596 04

PALLADIUM

Hydrogen eliminator
ARC-10408 B72-10208 03
Magnetic-doped alloys with very large Seebeck coefficients
M-FS-21410 B72-10318 04

PANELS

Reduction of fan noise: A concept
ARC-10312 B72-10040 06
Aluminum foil interconnects for solar cell panels
ARC-10374 B72-10058 08
Compensating subreflector for two-reflector antennas: A concept
NPO-11503 B72-10093 06
Micro regulating ball valve
ARC-10295 B72-10121 06
Flexible shielding system for radiation protection
LRL-10028 B72-10500 03
Response of a panel structure to reverberant acoustic excitation
M-FS-21774 B72-10603 06

PAPERS

Novel dielectric reduces corona breakdown in ac capacitors
M-FS-21486 B72-10505 01

PARALLEL PLATES

Parallel-plate viscometer
NPO-11387 B72-10700 03

PARAMAGNETISM

Low temperature scale for a 1 to 20 degree Kelvin region
AEC-10007 B72-10146 03

PARAMETERIZATION

Computer programs for the design of liquid-to-liquid jet pumps
LEWIS-11679 B72-10584 09
FORTRAN read package
MSC-14161 B72-10750 09

PARITY

Topological solution of bilateral switching networks
ARC-10294 B72-10055 01

PARTIAL DIFFERENTIAL EQUATIONS

Computer program draws three-dimensional surfaces
LEWIS-10482 B72-10253 09
FORTRAN program for generating a two-dimensional orthogonal mesh between two arbitrary boundaries
LEWIS-11863 B72-10753 09

PARTICLE ACCELERATION

Velocity accelerator for particles
NPO-11349 B72-10082 03
Properties of ionization breakdown of air at microwave frequencies and optimization of component dimensions for maximum microwave power
M-FS-21924 B72-10316 01

PARTICLE BEAMS

Oscillation of laser-beam intensity as observed with beam splitters
ARC-10694 B72-10572 03

PARTICLE COLLISIONS

A method of eliminating hydrogen maser wall shift
HQ-10663 B72-10670 03

PARTICLE DENSITY**(CONCENTRATION)**

Particle detection by a light-scattering technique
ARC-10384 B72-10160 03
Particle detection with intensified laser beam
HQ-10645 B72-10516 03

PARTICLE DIFFUSION

Particle detection with intensified laser beam
HQ-10645 B72-10516 03

PARTICLE SIZE DISTRIBUTION

Particle detection with intensified laser beam
HQ-10645 B72-10516 03

PARTICLES

Laser beam deflection control: A concept
MSC-13814 B72-10411 02
Analysis of microsize particulates
ARC-10647 B72-10565 04

PASSIVITY

Development of chip passivated monolithic complementary MISFET circuits with beam leads
M-FS-22264 B72-10696 01

PATIENTS

Small, low cost, artificial kidney
AEC-10011 B72-10371 05

PATTERN RECOGNITION

Speech therapy and voice recognition instrument
HQ-10628 B72-10652 05

PEARSON DISTRIBUTIONS

Program for standard statistical distributions
M-FS-21466 B72-10602 09

PELLETS

Real-time pair-feeding of animals
ARC-10302 B72-10298 05

PELLICLE

Liquid-helium-cooled Michelson interferometer
ARC-10554 B72-10217 03

PENETRATION

An empirical relationship for the penetration of 1 to 3 MeV electrons
LEWIS-11495 B72-10144 04
Survey of information concerning large diameter deep hole drilling
AEC-10051 B72-10238 08

PENTANES

Evaluating foam heterogeneity
AEC-10046 B72-10365 04

PERFORATING

Indexing film with a fluidic sensor
MSC-14117 B72-10501 02

PERFORMANCE

Accurate measurement of telemetry performance
NPO-11457 B72-10089 02
Performance of silicon solar cell assemblies
NPO-11847 B72-10186 01
A method for calculating the effects of design errors and measurement errors on pump performance
LEWIS-11503 B72-10292 07

Oscillating hot-wire anemometer

NPO-11634 B72-10609 02
Comparative performance of double-focus and quadrupole mass spectrometers
NPO-11689 B72-10702 03

PERFORMANCE PREDICTION

Prediction of ducted fan performance
ARC-10615 B72-10064 09
Reliability analysis based on operational success criteria
ARC-10490 B72-10214 09
Mathematical analysis for the performance assessment of space communication parameters, IBM-360 version
GSFC-11523 B72-10675 09
Integrated multi-path program analysis and cost technique (IMPACT)
M-FS-21880 B72-10676 09
Final report on a study of low-density nozzle flows, with application to microthrust rockets
HQ-10761 B72-10748 06

PERFORMANCE TESTS

Fabrication techniques for organic electrolyte battery
AEC-10019 B72-10428 08

PERMEABILITY

Improved elastomer for use with oxygen difluoride
ARC-10528 B72-10027 04
Halogenation of microcapsule walls
ARC-10410 B72-10161 04
Water purification by reverse osmosis using heterocyclic polymer membranes
LANGLEY-10514 B72-10230 04
High temperature permeameter for measuring magnetic properties
LEWIS-11609 B72-10443 03
Reduction of porosity in aluminum weldments
MSC-14198 B72-10734 08

PERMEATING

Advances in induction-heated plasma torch technology
LEWIS-11354 B72-10151 03

PERSONNEL

High voltage protection network
ARC-10197 B72-10119 02

PERSONNEL MANAGEMENT

FORTRAN manpower account program
NPO-11973 B72-10623 09

PERSONNEL SUBSYSTEMS

FORTRAN manpower account program
NPO-11973 B72-10623 09

PERTURBATION

Sensitive holographic detection of small aerodynamic perturbations
ARC-10422 B72-10209 03

- Interplanetary Trajectories, Encke Method (ITEM)
 GSFC-11576 B72-10604 09
 Transonic divider for gas chromatograph effluents
 NPO-11479 B72-10706 03
- PH**
 A method of isolating organic compounds present in water
 AEC-10010 B72-10044 04
 Sensor capsule for diagnosis of gastric disorders
 HQ-10767 B72-10531 05
- PHARMACOLOGY**
 Covalent bonding of antibodies, of polystyrene latex beads: A concept
 MSC-13906 B72-10006 05
- PHASE CONTROL**
 Low distortion automatic phase control circuit
 M-FS-21671 B72-10682 02
- PHASE DETECTORS**
 Vibrating ribbon bolometer: A concept
 XAC-10768 B72-10170 03
 Low distortion automatic phase control circuit
 M-FS-21671 B72-10682 02
- PHASE DIAGRAMS**
 Computer program draws three-dimensional surfaces
 LEWIS-10482 B72-10253 09
- PHASE LOCKED SYSTEMS**
 Signal to noise measurement circuit
 GSFC-11239 B72-10102 01
- PHASE MODULATION**
 Sensitive holographic detection of small aerodynamic perturbations
 ARC-10422 B72-10209 03
- PHASE SHIFT**
 Vibrating ribbon bolometer: A concept
 XAC-10768 B72-10170 03
 Low phase-shift amplifier
 NPO-11663 B72-10185 01
 Nondestructive testing of microtab welds
 ARC-10176 B72-10296 02
 Low frequency sinusoidal pressure generator
 LEWIS-11465 B72-10477 01
 Design of microstrip components by computer
 LANGLEY-11210 B72-10741 01
- PHASE SHIFT CIRCUITS**
 The thin film microwave iris
 LANGLEY-10511 B72-10548 02
- PHASE TRANSFORMATIONS**
 Liquid methane gelled with methanol and water reduces rate of nitrogen absorption
 LEWIS-11574 B72-10330 06
 Phase-change materials handbook
 M-FS-22064 B72-10464 04
- PHENOLIC RESINS**
 Halogenation of microcapsule walls
 ARC-10410 B72-10161 04
- PHENOLS**
 A method of isolating organic compounds present in water
 AEC-10010 B72-10044 04
 Initiation of polymerization by tetrabutylammonium p-lithiophenoxide
 ARC-10553 B72-10223 04
- PHOSPHATES**
 Phosphorus in land-water systems
 AEC-10049 B72-10429 05
- Research on bearing lubricants for use in a high vacuum
 M-FS-22119 B72-10469 04
 Boron-10 loaded inorganic shielding material
 M-FS-22280 B72-10740 04
- PHOSPHONIUM COMPOUNDS**
 Phosphonium chloride for thermal storage
 ARC-10572 B72-10422 04
- PHOSPHORIC ACID**
 Simple gas chromatographic system for analysis of microbial respiratory gases
 ARC-10403 B72-10207 03
 Improved photoetching fabrication method
 LEWIS-11268 B72-10745 08
- PHOSPHORS**
 Projections of scan patterns on human retina
 ARC-10181 B72-10193 05
 A visual-display and storage device
 GSFC-10901 B72-10647 02
- PHOSPHORUS COMPOUNDS**
 Radiation-induced nickel deposits
 LEWIS-10965 B72-10456 04
- PHOSPHORYLATION**
 Immobilized phosphorylase for synthesis of polysaccharides from glucose
 ARC-10680 B72-10550 04
- PHOTOCATHODES**
 Advanced infrared photomultiplier
 M-FS-20941 B72-10152 03
 Optical enhancement of sensitivity in laser Doppler velocity systems
 ARC-10653 B72-10310 03
 A sensitive image intensifier which uses inert gas
 LRL-10024 B72-10312 03
- PHOTOCHEMICAL REACTIONS**
 Silver-chlorine fuel cell: A concept
 ARC-10491 B72-10221 03
 Erasable holographic medium using cis-trans isomerization
 M-FS-22062 B72-10720 03
- PHOTOCONDUCTIVE CELLS**
 An optical quality meter suitable for cryogenic liquids
 LEWIS-11814 B72-10686 06
- PHOTOCONDUCTIVITY**
 High field CdS detector for infrared radiation
 LANGLEY-11027 B72-10725 04
- PHOTOCONDUCTORS**
 High solar intensity radiometer
 LEWIS-11533 B72-10130 03
 Sputter etching of hemispherical bearings
 HQ-10712 B72-10534 08
- PHOTODIODES**
 Increasing the response of PIN photodiodes to the ultraviolet
 ARC-10274 B72-10053 03
 Particle detection by a light-scattering technique
 ARC-10384 B72-10160 03
 An absentee monitoring device
 KSC-10668 B72-10578 01
- PHOTOELECTRIC CELLS**
 Solar experiment alignment system
 ARC-10471 B72-10020 03
 Wide angle solar sensor
 NPO-11341 B72-10080 01
 Nematic liquid crystals for optical shutters: A concept
 NPO-11367 B72-10083 03
- Stable photosensor amplifiers
 NPO-11561 B72-10100 01
 Tornado detector and alarm
 M-FS-20915 B72-10106 01
 Time-lapse camera for microscopy
 ARC-10423 B72-10125 05
 Programmed physiological infusion system
 ARC-10447 B72-10126 05
 Illumination control system
 ARC-10527 B72-10167 02
 Projections of scan patterns on human retina
 ARC-10181 B72-10193 05
 Nondispersive infrared analyzer for specific gases in complex mixtures
 ARC-10308 B72-10198 03
 Visual sensitivity tester
 ARC-10329 B72-10203 05
 Ear oximeter-transducer monitors four physiological responses
 XAC-05422 B72-10224 05
 Broadband RF-distribution amplifier
 NPO-11401 B72-10245 01
 A magnetic mouse activity meter
 HQ-10664 B72-10482 05
 Photomultiplier blanking circuit
 ARC-10593 B72-10561 01
- PHOTOELECTRIC EFFECT**
 Photomultiplier blanking circuit
 ARC-10593 B72-10561 01
 Improved photoetching fabrication method
 LEWIS-11268 B72-10745 08
- PHOTOELECTRIC EMISSION**
 Advanced infrared photomultiplier
 M-FS-20941 B72-10152 03
 Simple dynamic electromagnetic radiation detector
 LEWIS-11159 B72-10227 03
 Photomultiplier blanking circuit
 ARC-10593 B72-10561 01
 Photoemissive coating
 M-FS-22003 B72-10638 08
- PHOTOELECTRIC MATERIALS**
 Thin-film ultraviolet detector and spectrometer
 NPO-11432 B72-10701 03
- PHOTOELECTRICITY**
 Nematic liquid crystals for optical shutters: A concept
 NPO-11367 B72-10083 03
 Stable photosensor amplifiers
 NPO-11561 B72-10100 01
- PHOTOGRAPHIC DEVELOPERS**
 Silver-chlorine fuel cell: A concept
 ARC-10491 B72-10221 03
 Radiation-induced nickel deposits
 LEWIS-10965 B72-10456 04
- PHOTOGRAPHIC EQUIPMENT**
 Annular objective apertures improve resolution of electron microscopes
 ARC-10448 B72-10171 03
 Film holder for curved vacuum platen
 MSC-14120 B72-10542 07
- PHOTOGRAPHIC FILM**
 Analog table look-up device identifies unknown terrain
 MSC-13816 B72-10033 03
 Time-lapse camera for microscopy
 ARC-10423 B72-10125 05
 Improved intensifying screen reduces X-ray exposure
 AEC-10090 B72-10232 03
 Radiation-induced nickel deposits
 LEWIS-10965 B72-10456 04

- Neutron radiographic viewing system
M-FS-22024 B72-10468 02
A rapid, precise, reciprocating-
movement color filter system
GSFC-11255 B72-10497 07
Indexing film with a fluidic sensor
MSC-14117 B72-10501 02
Film handling system for laser
scanner/recorder
MSC-14121 B72-10539 07
Film holder for curved vacuum platen
MSC-14120 B72-10542 07
- PHOTOGRAPHIC PLATES**
Film holder for curved vacuum platen
MSC-14120 B72-10542 07
Optimal read/write memory system
components
M-FS-22044 B72-10697 01
- PHOTOGRAPHIC PROCESSING**
Radiation-induced nickel deposits
LEWIS-10965 B72-10456 04
- PHOTOGRAPHIC PROCESSING EQUIPMENT**
Neutron radiographic viewing system
M-FS-22024 B72-10468 02
Film holder for curved vacuum platen
MSC-14120 B72-10542 07
- PHOTOGRAPHIC RECORDING**
Cine recording ophthalmoscope
ARC-10399 B72-10189 05
A rapid, precise, reciprocating-
movement color filter system
GSFC-11255 B72-10497 07
- PHOTOGRAPHY**
Cine recording ophthalmoscope
ARC-10399 B72-10189 05
- PHOTOMECHANICAL EFFECT**
Rotary shutter mechanism contains
optical elements
GSFC-11244 B72-10387 03
- PHOTOMETERS**
Projections of scan patterns on human
retina
ARC-10181 B72-10193 05
Nondispersive infrared analyzer for
specific gases in complex mixtures
ARC-10308 B72-10198 03
Lightning flash detection system
ARC-10562 B72-10272 02
- PHOTOMETRY**
Stable photosensor amplifiers
NPO-11561 B72-10100 01
- PHOTOMICROGRAPHS**
Time-lapse camera for microscopy
ARC-10423 B72-10125 05
- PHOTOMICROGRAPHY**
Long-term drift of thermocouples at
1600 K
LEWIS-11471 B72-10176 01
Hand-held photomicroscopy system
ARC-10468 B72-10190 03
- PHOTOMULTIPLIER TUBES**
A liquid radiation detector with high
spatial resolution
MSC-13965 B72-10034 03
Advanced infrared photomultiplier
M-FS-20941 B72-10152 03
Scanning technique for tracking small
eye-movements
ARC-10488 B72-10220 05
Optical enhancement of sensitivity in
laser Doppler velocity systems
ARC-10653 B72-10310 03
Rotary shutter mechanism contains
optical elements
GSFC-11244 B72-10387 03
- Metastable atom probe for measuring
electron beam density profiles
M-FS-21593 B72-10485 03
A reusable prepositioned ATP reaction
chamber
HQ-10660 B72-10525 05
Photomultiplier blanking circuit
ARC-10593 B72-10561 01
Computer program for fitting low-order
polynomial splines by method of least
squares
LEWIS-11651 B72-10585 09
- PHOTON BEAMS**
Oscillation of laser-beam intensity as
observed with beam splitters
ARC-10694 B72-10572 03
- PHOTONS**
Increasing the response of PIN pho-
todiodes to the ultraviolet
ARC-10274 B72-10053 03
A Compton scatter attenuation gamma
ray spectrometer
M-FS-21441 B72-10487 03
- PHOTOPLASTICITY**
Optimal read/write memory system
components
M-FS-22044 B72-10697 01
- PHOTOSYNTHESIS**
A dual-beam actinic light source for
photosynthesis research
ARC-10351 B72-10205 05
- PHOTOTRANSISTORS**
New reaction tester accurate within
56 microseconds
MSC-13604 B72-10031 05
Solid state television camera has no
imaging tube
M-FS-21553 B72-10254 02
Overlap diffusion for increasing photo-
transistor dynamic range
M-FS-20407 B72-10347 01
- PHOTOTUBES**
Nematic liquid crystals for optical
shutters: A concept
NPO-11367 B72-10083 03
- PHOTOVOLTAIC CELLS**
Solar experiment alignment system
ARC-10471 B72-10020 03
High solar intensity radiometer
LEWIS-11533 B72-10130 03
- PHYSICAL PROPERTIES**
Improved thermally conducting electron
transfer polymers
GSFC-11304 B72-10291 04
Graphite and boron-reinforced com-
posite materials data summary
M-FS-21691 B72-10294 04
Polyimide foams provide thermal insula-
tion and fire protection
ARC-10464 B72-10300 04
Thermally resistant polymers for fuel
tank sealants
M-FS-21232 B72-10358 04
Polymeric binder for explosives
AEC-10062 B72-10366 04
Bondability of RTV silicon rubber
AEC-10026 B72-10367 04
Technique for increasing yield of trifluo-
ronitrosomethane-tetrafluoroethylene lymer
ARC-10566 B72-10418 04
Phosphonium chloride for thermal
storage
ARC-10572 B72-10422 04
Fabrication of carbon film composites
for high-strength structures
ARC-10613 B72-10423 04
- Leaching of nitroso rubber material
removes uncured polymer
MSC-17185 B72-10449 04
Chemical modification of poly(p-
phenylene) for use in ablative
compositions
ARC-10135 B72-10451 04
Process for synthesizing and formulating
condensed ring polymers
LANGLEY-10423 B72-10473 04
Functionally terminated liquid nitroso
fluorocarbon terpolymers
M-FS-21539 B72-10493 04
PTFE films with improved flexibility
NPO-12028 B72-10551 04
Micro-scale crease-and-fold apparatus
NPO-12029 B72-10552 06
Improved silver-zinc battery-terminal
seals
LEWIS-11615 B72-10581 06
Study of hot hardness characteristics
of tool steels
LEWIS-11785 B72-10583 04
Thermal conductivity and electrical
resistivity of porous materials
LEWIS-11754 B72-10587 04
Polyimide bonded graphite fluoride: A
new long life solid lubricant coating
LEWIS-11864 B72-10628 04
Improved lip seal for rotating shafts
LEWIS-11602 B72-10672 07
Improved zinc oxide thermal control
coatings
NPO-11139 B72-10711 04
Heat transfer correlations for kerosene
fuels and mixtures and physical properties
for Jet A fuel
LEWIS-11652 B72-10742 04
- PHYSIOLOGICAL FACTORS**
A continuous physiological data
collector
M-FS-20835 B72-10402 05
- PHYSIOLOGICAL RESPONSES**
New reaction tester accurate within
56 microseconds
MSC-13604 B72-10031 05
Ear oximeter-transducer monitors four
physiological responses
XAC-05422 B72-10224 05
- PHYSIOLOGICAL TESTS**
Improved ultrasonic biomedical measur-
ing apparatus
ARC-10597 B72-10695 05
- PIEZOELECTRIC CRYSTALS**
Piezoelectric transducer mosaic
ARC-10509 B72-10014 01
- PIEZOELECTRIC TRANSDUCERS**
Piezoelectric transducer mosaic
ARC-10509 B72-10014 01
Gravitational gradiometer measures
mass changes
M-FS-20814 B72-10140 03
Continuous monitor for gas ratios in a
mixture
LEWIS-11095 B72-10229 05
- PIEZOELECTRICITY**
Piezoelectric actuator uses sequentially-
excited multiple elements: A concept
NPO-11527 B72-10096 01
A piezoelectrically actuated ball valve
ARC-10338 B72-10204 06
- PIGMENTS**
Plasma calcining of pigment particles
for thermal control coatings
M-FS-21267 B72-10320 04

- Study of in-situ degradation of thermal control surfaces
M-FS-20892 872-10336 04
- Investigation of environmental effects on coatings for thermal control
M-FS-21932 872-10596 04
- Improved zinc oxide thermal control coatings
NPO-11139 872-10711 04
- PILOT TRAINING**
Roll function in a flight simulator
ARC-10557 872-10417 02
- PINS**
Electrical grounding bracket
ARC-10041 872-10045 01
- Squib-actuated disconnect device
NPO-11544 872-10097 06
- Positive fast sealing union connections
LEWIS-11290 872-10133 06
- Method of determining thermal conductivity in multi-layer insulation systems
M-FS-20213 872-10154 03
- PIONEER SPACE PROBES**
Speed enhancement of complementary MOS devices
ARC-10387 872-10184 01
- PIPE FLOW**
Use of small turbine-type flowmeters to measure flow in large pipes
LEWIS-11851 872-10631 06
- Fill and vent quick disconnect
M-FS-21822 872-10645 07
- A shut-off valve for flexible tubing
M-FS-21731 872-10687 07
- Heat transfer correlations for kerosene fuels and mixtures and physical properties for Jet A fuel
LEWIS-11652 872-10742 04
- PIPELINES**
Automatic lightning location system
AEC-10077 872-10372 02
- PIPES (TUBES)**
Pressure sensitive gas flow meter
ARC-10219 872-10049 06
- Velocity accelerator for particles
NPO-11349 872-10082 03
- Tubing cutter
NPO-11524 872-10095 07
- Longitudinal friction forces in piping design
M-FS-13754 872-10103 01
- Low noise electromagnetic flowmeter
M-FS-21291 872-10108 02
- Glass technology involved in the manufacture of magnetometer components
GSFC-11283 872-10132 03
- High-temperature, long-life thyatron
LEWIS-11327 872-10134 01
- Cryogenic gel flow viscometer
ARC-10523 872-10180 03
- Heart catheter cable and connector
ARC-10406 872-10200 05
- Energy absorber uses expanded coiled tube
AEC-10044 872-10239 06
- Pressure-probe assembly for wind tunnels
ARC-10569 872-10248 03
- An electrohydrodynamic heat pipe
ARC-10601 872-10251 03
- A cryopump for cooling objects at a distance
LRL-10031 872-10314 03
- Remote control flare stack igniter for combustible gases
M-FS-21675 872-10352 07
- Low cost anti-galling bushings
LEWIS-11724 872-10359 08
- Noncontaminating technique for making holes in existing process systems
LEWIS-11595 872-10385 07
- Nonsteady flow-direction measurement
LEWIS-11499 872-10403 06
- Enhanced Lamb dip for absolute laser frequency stabilization
HQ-10695 872-10481 02
- Dry ice plug for hydraulic and pneumatic pipe flushing
MSC-12548 872-10496 06
- High-intensity source of extreme ultraviolet
HQ-10754 872-10528 03
- Hydrophobic liquid/gas separator for heat pipes
ARC-10656 872-10549 03
- Propellant feed systems transients
MSC-17848 872-10677 06
- Portable beveling tool
M-FS-16863 872-10678 07
- A shut-off valve for flexible tubing
M-FS-21731 872-10687 07
- Gas-flow restrictor
NPO-10117 872-10703 03
- Optimization of fluid line sizes with pumping power penalty IBM-360 computer program
MSC-17930 872-10722 06
- Reduction of porosity in aluminum weldments
MSC-14198 872-10734 08
- PISTONS**
Gyro spring augmentation system
ARC-10496 872-10010 06
- Squib-actuated disconnect device
NPO-11544 872-10097 06
- Thermal-powered reciprocating pump
NPO-11417 872-10723 06
- PITCH (INCLINATION)**
Inertial reference unit
NPO-11518 872-10094 02
- Interferometric rotation sensor
ARC-10278 872-10274 03
- PITOT TUBES**
A stagnation pressure probe for use in supersonic flow
LANGLEY-11139 872-10543 06
- PIVOTS**
Universal inverted flexure
ARC-10345 872-10122 07
- Latch mechanism
M-FS-21606 872-10457 08
- PLANAR STRUCTURES**
Topological solution of bilateral switching networks
ARC-10294 872-10055 01
- Interconnections for fluidic circuits
ARC-10481 872-10164 02
- PLANETARY ATMOSPHERES**
Improved high-performance shock tube
NPO-11885 872-10242 03
- PLANETARY ORBITS**
Rapid analysis of electric propulsion missions
ARC-10430 872-10299 09
- PLANETARY SURFACES**
Planetary rock corer and drill concepts
NPO-11416 872-10398 07
- Energy absorbing system for mechanical impacts
NPO-10671 872-10712 06
- PLANTS (BOTANY)**
Illumination control system
ARC-10527 872-10167 02
- A dual-beam actinic light source for photosynthesis research
ARC-10351 872-10205 05
- PLASMA CONTROL**
Advances in induction-heated plasma torch technology
LEWIS-11354 872-10151 03
- PLASMA DENSITY**
Laser frequency modulation with electron plasma
AEC-10079 872-10373 03
- PLASMA DIAGNOSTICS**
Measurement of electron density and temperature in plasmas
ARC-10598 872-10563 03
- PLASMA DYNAMICS**
Interferometric measurement of the velocity of radiating particles
HQ-10371 872-10495 03
- PLASMA ELECTRODES**
Pulsed high-power arc heater with improved cathode and triggering mechanism
ARC-10173 872-10048 03
- PLASMA GENERATORS**
Pulsed high-power arc heater with improved cathode and triggering mechanism
ARC-10173 872-10048 03
- Advances in induction-heated plasma torch technology
LEWIS-11354 872-10151 03
- Computation of laminar heat transfer from gaseous plasmas in electromagnetic fields
NPO-11725 872-10707 03
- PLASMA HEATING**
Advances in induction-heated plasma torch technology
LEWIS-11354 872-10151 03
- Plasma calcining of pigment particles for thermal control coatings
M-FS-21267 872-10320 04
- Oxygen plasmas used to synthesize superoxides
ARC-10686 872-10570 04
- PLASMA JETS**
Interferometric measurement of the velocity of radiating particles
HQ-10371 872-10495 03
- PLASMA PHYSICS**
Advances in induction-heated plasma torch technology
LEWIS-11354 872-10151 03
- PLASMA PROPULSION**
Computation of laminar heat transfer from gaseous plasmas in electromagnetic fields
NPO-11725 872-10707 03
- PLASMAS (PHYSICS)**
Plasma calcining of pigment particles for thermal control coatings
M-FS-21267 872-10320 04
- PLASTIC DEFORMATION**
Experimental study of surface cracks
MSC-14032 872-10019 04
- New compression molding process of thermosetting plastic compounds
LANGLEY-10782 872-10356 08
- PLASTIC FLOW**
Explosive cord
M-FS-21928 872-10293 08
- PLASTIC PROPERTIES**
Analysis of thermal stress and metal movement during welding
M-FS-20984 872-10333 04

PLASTIC TAPES

Thermocouple tape
LEWIS-11072 872-10515 04

PLASTICS

Use of thin plastic films at cryogenic temperatures
LEWIS-11047 872-10038 04
Sheet plastic filters for solar cells
NPO-11464 872-10090 04
An economical vent cover
M-FS-20692 872-10348 07
Evaluating foam heterogeneity
AEC-10046 872-10365 04
Built-in bleeder system in laminated plastic structures
MSC-17713 872-10562 08
A monostain test apparatus
M-FS-24221 872-10679 06

PLATENS

Film handling system for laser scanner/recorder
MSC-14121 872-10539 07

PLATES (STRUCTURAL MEMBERS)

Electromagnetic rheometer
ARC-10525 872-10416 04
Effects of nonuniform swash-plate stiffness on coupled blade-control system dynamics and stability
LANGLEY-11068 872-10749 06

PLATFORMS

Position indicating, rotating boom
LANGLEY-11202 872-10066 07
Three-point compound sine plate offers cost and weight savings
MSC-15818 872-10118 07

PLATING

Ion plating seals microcracks or porous metal components
LEWIS-11657 872-10397 04
A new low-cost method for producing collimating mirrors
LEWIS-11553 872-10513 08

PLATINUM

Low temperature catalytic ignition of hydrogen and oxygen
ARC-10492 872-10127 03
Low temperature scale for a 1 to 20 degree Kelvin region
AEC-10007 872-10146 03
Carbon dioxide concentrator
ARC-10245 872-10194 05
High-temperature ceramic-to-ceramic seals
ARC-10319 872-10199 04
Comparison of catalyst activity
ARC-10493 872-10201 04
Oxygen reclamation with solid oxide electrolytes
ARC-10487 872-10273 03
Amplifier for signal from thin film transducer
LEWIS-11494 872-10463 01
Humidity resistant solar cell contacts
HQ-10674 872-10517 04

PLATINUM COMPOUNDS

Development of chip passivated monolithic complementary MISFET circuits with beam leads
M-FS-22264 872-10696 01

PLENUM CHAMBERS

Removal of filler material from large high energy formed parts
M-FS-16326 872-10104 06
Dynamic valve to supply constant total thrust to two orifice jets
ARC-10239 872-10120 07

Two-stage coaxial gas compressor
ARC-10426 872-10210 06

PLOTTERS

Visual sensitivity tester
ARC-10329 872-10203 05
Computer program draws three-dimensional surfaces
LEWIS-10482 872-10253 09
Snap dynamics
M-FS-21531 872-10265 09

PLOTTING

Program for the transient response of ablating axisymmetric bodies including the effects of shape change
LANGLEY-11049 872-10068 09
Computer program draws three-dimensional surfaces
LEWIS-10482 872-10253 09

PLUGS

Hydrophobic liquid/gas separator for heat pipes
ARC-10656 872-10549 03

PLUMES

Hydraulic modeling of heat dispersion in large lakes
AEC-10003 872-10039 03

PLUNGERS

A cable stabilizer for outdoor elevators
KSC-10513 872-10283 07

PNEUMATIC CONTROL

Thermal control for storage of cryogenic propellants in a common-bulkhead tank: A concept
ARC-10558 872-10276 03
Intravenous fluid flow meter concept for zero gravity environment
MSC-14123 872-10461 05
Integrated monopropellant thruster
NPO-12004 872-10502 06

PNEUMATIC EQUIPMENT

Weight simulator
ARC-10100 872-10046 05
Nondispersive infrared analyzer for specific gases in complex mixtures
ARC-10308 872-10198 03
Survey of aircraft electrical power systems
LEWIS-11678 872-10383 02
Controlled flow assembly
M-FS-21716 872-10404 07
Sterile chamber operation with bio-isolator suit system
LANGLEY-11054 872-10547 05
High pressure liquid gas pump
MSC-14087 872-10590 06
Concentric-seating poppet
NPO-11658 872-10704 06

PNEUMATICS

Interconnections for fluidic circuits
ARC-10481 872-10164 02

POINTS (MATHEMATICS)

Cubic spline functions for curve fitting
LRL-10034 872-10311 09
Numerical solution of potential flow problems in terms of flux components
M-FS-21751 872-10667 09

POLARIMETERS

Optical bonding agents for severe environments
ARC-10459 872-10063 04

POLARITY

Inertial reference unit
NPO-11518 872-10094 02

Compensation of voltage drops in solid-state switches used with thermoelectric generators
NPO-11388 872-10138 01

Vidicon storage tube electrical input/output
MSC-14053 872-10285 02

POLARIZATION (CHARGE SEPARATION)

A piezoelectrically actuated ball valve
ARC-10338 872-10204 06

POLARIZATION (WAVES)

Acousto-optic filter for electronic laser tuning
HQ-10715 872-10520 03

POLARIZERS

Efficient wire-grid duplexer-polarized for CO₂ lasers
GSFC-11403 872-10440 03

POLISHING

An improved apochromatic wedge utilizing optical molecular contact bonding
GSFC-11082 872-10388 03
Machine finishes balls to high degree of roundness
M-FS-21448 872-10595 08

POLYCRYSTALS

Improved synthesis of intermetal compounds
HQ-10690 872-10172 04

POLYETHYLENES

Hydrophobic liquid/gas separator for heat pipes
ARC-10656 872-10549 03

POLYIMIDE RESINS

New polyimide polymer has excellent processing characteristics with improved thermo-oxidative and hydrolytic stabilities
LEWIS-11323 872-10175 04
Polyimide foams provide thermal insulation and fire protection
ARC-10464 872-10300 04
Titanium reinforced boron polyimide composite
M-FS-21916 872-10353 04
Low-void polyimide resins for autoclave processing
LEWIS-11665 872-10728 04

POLYIMIDES

New polyimide polymer has excellent processing characteristics with improved thermo-oxidative and hydrolytic stabilities
LEWIS-11323 872-10175 04
Flexible, low-cost silicon solar cell arrays
LEWIS-11069 872-10177 02
Development of a polyimide for use as a temperature and solvent resistant sealant
M-FS-21325 872-10262 04

Synthesis of temperature and solvent-resistant polymers
M-FS-20848 872-10342 04

Internal capillary insulation for cryogenic tanks
LEWIS-11234 872-10626 06

Polyimide bonded graphite fluoride: A new long life solid lubricant coating
LEWIS-11864 872-10628 04

Low-void polyimide resins for autoclave processing
LEWIS-11665 872-10728 04

POLYMER CHEMISTRY

Fire retardant polyisocyanurate foam
ARC-10280 872-10269 04

- Chemical modification of poly(p-phenylene) for use in ablative compositions
 ARC-10135 872-10451 04
 Functionally terminated liquid nitroso fluorocarbon terpolymers
 M-FS-21539 872-10493 04
- POLYMER PHYSICS**
 Impact sensitivity of materials in contact with liquid and gaseous oxygen at high pressure
 M-FS-21930 872-10476 06
 Functionally terminated liquid nitroso fluorocarbon terpolymers
 M-FS-21539 872-10493 04
- POLYMERIC FILMS**
 Use of thin plastic films at cryogenic temperatures
 LEWIS-11047 872-10038 04
 Sheet plastic filters for solar cells
 NPO-11464 872-10090 04
 Halogenation of microcapsule walls
 ARC-10410 872-10161 04
 Overlay board for control consoles
 ARC-10007 872-10191 02
 Impact sensitivity of materials in contact with liquid and gaseous oxygen at high pressure
 M-FS-21930 872-10476 06
 PTFE films with improved flexibility
 NPO-12028 872-10551 04
 Micro-scale crease-and-fold apparatus
 NPO-12029 872-10552 06
 Photoemissive coating
 M-FS-22003 872-10638 08
 Reverse-osmosis membranes by plasma polymerization
 ARC-10696 872-10710 04
- POLYMERIZATION**
 Initiation of polymerization by tetrabutylammonium p-lithiophenoxide
 ARC-10553 872-10223 04
 Polymeric coatings using electronic excitation
 HQ-10698 872-10257 04
 Technique for increasing yield of trifluoronitrosomethane-tetrafluoroethylene lymer
 ARC-10566 872-10418 04
 Free-radical solution-polymerization of trifluoronitrosomethane with tetrafluoroethylene
 ARC-10567 872-10419 04
 Process for synthesizing and formulating condensed ring polymers
 LANGLEY-10423 872-10473 04
 Photoemissive coating
 M-FS-22003 872-10638 08
 Reverse-osmosis membranes by plasma polymerization
 ARC-10696 872-10710 04
- POLYMERS**
 Flame resistant elastic elastomeric fibers
 MSC-13923-4 872-10005 04
 Zero-leakage valves
 ARC-10506 872-10024 06
 Electrodes for sealed secondary batteries
 ARC-10238 872-10050 02
 Devolatilization of polymer resins
 GSFC-11358 872-10280 04
 A new vibration dampening adhesive
 MSC-17668 872-10284 04
 Improved thermally conducting electron transfer polymers
 GSFC-11304 872-10291 04
- Synthesis of temperature and solvent-resistant polymers
 M-FS-20848 872-10342 04
 Titanium reinforced boron polyimide composite
 M-FS-21916 872-10353 04
 Thermally resistant polymers for fuel tank sealants
 M-FS-21232 872-10358 04
 Polymeric binder for explosives
 AEC-10062 872-10366 04
 Bondability of RTV silicon rubber
 AEC-10026 872-10367 04
 Strengthening lightweight concrete
 AEC-10017 872-10430 04
 Leaching of nitroso rubber material removes uncured polymer
 MSC-17185 872-10449 04
 Preparation of stable colloidal dispersions in fluorinated liquids
 HQ-10580 872-10529 04
- POLYNOMIALS**
 Third order digital-to-analog converter
 MSC-12458 872-10030 02
 Computer program for fitting low-order polynomial splines by method of least squares
 LEWIS-11651 872-10585 09
- POLYPHENYLS**
 Chemical modification of poly(p-phenylene) for use in ablative compositions
 ARC-10135 872-10451 04
- POLYPROPYLENE**
 Novel dielectric reduces corona breakdown in ac capacitors
 M-FS-21486 872-10505 01
- POLYSACCHARIDES**
 Immobilized phosphorylase for synthesis of polysaccharides from glucose
 ARC-10680 872-10550 04
- POLYSTYRENE**
 Covalent bonding of antibodies of polystyrene latex beads: A concept
 MSC-13906 872-10006 05
- POLYTETRAFLUOROETHYLENE**
 Zero-leakage valves
 ARC-10506 872-10024 06
 Electrodes for sealed secondary batteries
 ARC-10238 872-10050 02
 Promotion of dropwise condensation of ethyl alcohol, methyl alcohol, and acetone by polytetrafluoroethylene
 LANGLEY-10940 872-10115 04
 Micro regulating ball valve
 ARC-10295 872-10121 06
 Nonflammable and abrasion resistant coating process for glass fibers
 MSC-14024 872-10445 08
- POLYURETHANE FOAM**
 Method of determining thermal conductivity in multi-layer insulation systems
 M-FS-20213 872-10154 03
 High strength, medium density molded foam
 AEC-10053 872-10235 04
 Fire retardant polyisocyanurate foam
 ARC-10280 872-10269 04
- POLYURETHANE RESINS**
 Adhesive for aluminum withstands cryogenic temperatures
 M-FS-16848 872-10346 04
 New type of trifunctional alcohol
 NPO-10714 872-10553 04
- POLYVINYL CHLORIDE**
 Electrodes for sealed secondary batteries
 ARC-10238 872-10050 02
 Reduction of porosity in aluminum weldments
 MSC-14198 872-10734 08
- POROSITY**
 Ion plating seals microcracks or porous metal components
 LEWIS-11657 872-10397 04
 Humidity resistant solar cell contacts
 HQ-10674 872-10517 04
- POROUS MATERIALS**
 Water purification by reverse osmosis using heterocyclic polymer membranes
 LANGLEY-10514 872-10230 04
 Flow equation for porous plug and capillary tube flow restrictors
 GSFC-11387 872-10289 06
 Stabilization of porous glass reverse-osmosis membranes
 ARC-10646 872-10309 04
 Thermal conductivity and electrical resistivity of porous materials
 LEWIS-11754 872-10587 04
 Reduction of porosity in aluminum weldments
 MSC-14198 872-10734 08
 Joining porous components to solid metal structures
 LEWIS-11259 872-10754 08
- POROUS PLATES**
 A permeable rotating-wheel solvent extractor
 LRL-10033 872-10343 04
- PORTABLE EQUIPMENT**
 Laboratory leak tester provides high sensitivity
 AEC-10042 872-10240 03
 Noncontaminating technique for making holes in existing process systems
 LEWIS-11595 872-10385 07
 Portable beveling tool
 M-FS-16863 872-10678 07
 An efficient prebreathing apparatus for humans during decompression
 MSC-14151 872-10690 05
- PORTABLE LIFE SUPPORT SYSTEMS**
 Regenerable metallic oxide systems for removal of carbon dioxide: A concept
 ARC-10570 872-10420 04
- PORTS (OPENINGS)**
 Diatomic infrared gasdynamic laser permits selection of wavelengths
 ARC-10370 872-10206 03
 A valve concept for remote fluid flow control
 M-FS-16097 872-10400 07
- POSITION (LOCATION)**
 A magnetic mouse activity meter
 HQ-10664 872-10482 05
 Electronic integrator for gyro rate output voltages
 NPO-11499 872-10555 01
- POSITION ERRORS**
 Adaptive position control loop
 ARC-10255 872-10052 02
- POSITION INDICATORS**
 Automatic lightning location system
 AEC-10077 872-10372 02
- POSITIONING**
 Optical alignment of electrodes on electrical discharge machines
 XAC-09489 872-10036 07

POSITIONING DEVICES (MACHINERY)

- Low-friction ball-and-socket
NPO-11348 872-10081 08
Ball detent mechanism
M-FS-21735 872-10470 07

POTABLE WATER

- Mercury in the environment
AEC-10048 872-10233 05

POTASSIUM, CHLORIDES

- Al/C12 molten salt battery
HQ-10696 872-10527 01

POTASSIUM COMPOUNDS

- Space-suit carbon dioxide absorption system: A concept
ARC-10546 872-10168 05
Carbon dioxide concentrator
ARC-10245 872-10194 05

POTENTIAL FLOW

- Numerical solution of potential flow problems in terms of flux components
M-FS-21751 872-10667 09

POTENTIOMETERS

- Comparison of catalyst activity
ARC-10493 872-10201 04

POTENTIOMETERS (INSTRUMENTS)

- Hand-held photomicroscopy system
ARC-10468 872-10190 03

POTENTIOMETERS (RESISTORS)

- Improved device measures performance of batteries under load
ARC-10252 872-10051 02
Circuit permits independent adjustment of gain and offset at constant input impedance
ARC-10348 872-10057 01
Voltage-tunable parallel-T filter for remote operation
NPO-11165 872-10077 01
Heart simulator
M-FS-21609 872-10131 02
Potentiometer, constant tension and lubrication device
KSC-10723 872-10541 02

POTTING COMPOUNDS

- Devolatilization of polymer resins
GSFC-11358 872-10280 04

POWDER (PARTICLES)

- Plasma calcining of pigment particles for thermal control coatings
M-FS-21267 872-10320 04
Sintered diamond compacts using metallic cobalt binders
HQ-10706 872-10519 04

POWDER METALLURGY

- High strength alloy for immediate temperature, 24 to 704 C (75 to 1300 F), applications
LEWIS-11634 872-10344 04
Dispersion-strengthened chromium alloy
LEWIS-10982 872-10378 04
Polishing is made cheaper by disposable diamond-impregnated abrasive cloth
MSC-14247 872-10616 08

POWER AMPLIFIERS

- Improved audio reproduction system
ARC-10404 872-10059 01
A differential ECG amplifier with single-ended output
ARC-10411 872-10061 05
A brushless dc spin motor for momentum exchange altitude control
M-FS-14952 872-10448 02
Remote measurement of the water content of snowpacks
ARC-10651 872-10567 03

- Automatic method of measuring silicon-controlled-rectifier holding current
LEWIS-11898 872-10752 02

POWER CONDITIONING

- Peak-power-point monitor for solar panel
NPO-11708 872-10694 02
Comparative performance of double-focus and quadrupole mass spectrometers
NPO-11689 872-10702 03

POWER LIMITERS

- Wideband wattmeter for instant measurement of real power
LEWIS-11698 872-10737 01

POWER PLANTS

- Hydraulic modeling of heat dispersion in large lakes
AEC-10003 872-10039 03

POWER SPECTRA

- Acoustic spectral analysis and testing techniques
NPO-11554 872-10341 03
A study of the power spectral density of an FM signal
M-FS-21070 872-10361 02
Program to determine space vehicle response to wind turbulence
M-FS-21614 872-10410 09
Loudness (annoyance), prediction procedure for steady sounds
LEWIS-11761 872-10579 05

POWER SUPPLIES

- Cine recording ophthalmoscope
ARC-10399 872-10189 05

POWER SUPPLY CIRCUITS

- Circuit controls turn-on current
NPO-11339 872-10079 01
Speed enhancement of complementary MOS devices
ARC-10387 872-10184 01
A rapid, precise, reciprocating-movement color filter system
GSFC-11255 872-10497 07
Waveguide switch protector
NPO-11592 872-10705 01

POWER TRANSMISSION

- Transmission of optical frequencies with minimal losses
HQ-10541 872-10389 03

PREAMPLIFIERS

- Pulse excitation of bolometer bridges
ARC-10292 872-10054 01
Lightweight, broad-band spectrum analyzer
ARC-10405 872-10060 01
Differential input preamplifier
ARC-10489 872-10165 01
Wide-range dynamic pressure sensor
ARC-10263 872-10196 03

PRECESSION

- Wide-range nuclear magnetic resonance detector
LEWIS-11513 872-10478 03

PRECIPITATION HARDENING

- Joining precipitation-hardened nickel-base alloys by friction welding
LEWIS-11514 872-10288 08
Dispersion-strengthened chromium alloy
LEWIS-10982 872-10378 04

PREDICTION ANALYSIS TECHNIQUES

- Sunspot analysis and prediction
M-FS-21724 872-10317 03

PRELAUNCH TESTS

- Program to determine space vehicle response to wind turbulence
M-FS-21614 872-10410 09

PREPOLYMERS

- New polyimide polymer has excellent processing characteristics with improved thermo-oxidative and hydrolytic stabilities
LEWIS-11323 872-10175 04
Process for synthesizing and formulating condensed ring polymers
LANGLEY-10423 872-10473 04

PRESERVATIVES

- Stabilization of lactate dehydrogenase
ARC-10415 872-10062 05

PRESERVING

- Quick, easy to prepare freeze-dried soups
MSC-14003 872-10017 05

PRESSURE

- An improved aesthesiometer
MSC-13609 872-10032 05
Weight simulator
ARC-10100 872-10046 05
High-temperature, long-life thyatron
LEWIS-11327 872-10134 01
Heart catheter cable and connector
ARC-10406 872-10200 05
Balanced-bellows spirometer
XAC-01547 872-10279 05
Multipurpose top for liquid helium Dewar
ARC-10533 872-10302 03
An economical vent cover
M-FS-20692 872-10348 07
Noncontaminating technique for making holes in existing process systems
LEWIS-11595 872-10385 07
Low frequency sinusoidal pressure generator
LEWIS-11465 872-10477 01
Sintered diamond compacts using metallic cobalt binders
HQ-10706 872-10519 04
Mechanically and thermally stable master cavity resonator
HQ-10790 872-10523 01
Sensor capsule for diagnosis of gastric disorders
HQ-10767 872-10531 05
Leak test system
M-FS-21788 872-10576 06
Analysis and computer programs to calculate acoustic wave properties of baffled chambers
LEWIS-11529 872-10577 09
Computer program for quasi-three-dimensional calculation of surface velocities and choking flow for turbomachine blade rows
LEWIS-11635 872-10586 09
High strength high modulus ceramic fiber
M-FS-21266 872-10592 04
Machine finishes balls to high degree of roundness
M-FS-21448 872-10595 08
Thermal induced flow oscillations in heat exchangers for supercritical fluids
M-FS-21262 872-10598 06
Study of high altitude plume impingement
M-FS-21414 872-10601 09
Linear accelerator: A concept
KSC-10618 872-10636 06

- Fluid operated quick release mechanism
M-FS-20205 B72-10640 07
Quick-donning backpack harness
LANGLEY-10102 B72-10641 05
- PRESSURE BREATHING**
Aircrew oxygen system
ARC-10247 B72-10195 05
An efficient prebreathing apparatus for humans during decompression
MSC-14151 B72-10690 05
- PRESSURE CHAMBERS**
Propellant-powered actuator for gas generators
ARC-10484 B72-10008 03
- PRESSURE DISTRIBUTION**
Flow equation for porous plug and capillary tube flow restrictors
GSFC-11387 B72-10289 06
Constant tension device for gravity simulation
M-FS-21618 B72-10466 06
- PRESSURE DROP**
Cryogenic gel flow viscometer
ARC-10523 B72-10180 03
Airlock caution and warning system
M-FS-21576 B72-10467 02
Optimization of fluid line sizes with pumping power penalty IBM-360 computer program
MSC-17930 B72-10722 06
- PRESSURE GRADIENTS**
Program for calculating laminar and turbulent boundary layers in arbitrary pressure gradients
LEWIS-11097 B72-10111 09
Self-aligning, low-pressure sealing poppet valve
MSC-17745 B72-10538 07
Water impact loads
M-FS-21955 B72-10621 09
- PRESSURE MEASUREMENTS**
Method of determining thermal conductivity in multi-layer insulation systems
M-FS-20213 B72-10154 03
Wide-range dynamic pressure sensor
ARC-10263 B72-10196 03
Laboratory leak tester provides high sensitivity
AEC-10042 B72-10240 03
A stagnation pressure probe for use in supersonic flow
LANGLEY-11139 B72-10543 06
Probe measures gas and liquid mass flux in high mass flow ratio two-phase flows
LEWIS-11270 B72-10546 06
A multielement probe for coincident temperature and pressure measurements
LEWIS-11775 B72-10716 06
- PRESSURE REDUCTION**
Airflow distribution control for improved turbine engine performance
LEWIS-11593 B72-10178 07
Leak test system
M-FS-21788 B72-10576 06
Experimental study of flow distribution with circumferential manifolds
LEWIS-11649 B72-10738 06
- PRESSURE REGULATORS**
Propellant-powered actuator for gas generators
ARC-10484 B72-10008 03
Pressure sensitive gas flow meter
ARC-10219 B72-10049 06
Fluidic pressure regulators
ARC-10474 B72-10162 06
- Miniature high pressure regulator
ARC-10428 B72-10211 07
Counter lung
ARC-10248 B72-10219 05
A closed loop cryogenic environment pressure regulating system
MSC-13880 B72-10390 02
Combination pressure regulator and safety valve: A concept
MSC-14088 B72-10446 06
Low frequency sinusoidal pressure generator
LEWIS-11465 B72-10477 01
- PRESSURE SENSORS**
Oxygen pressure control for electrolysis cells
ARC-10250 B72-10074 02
Fluidic ignition detection
M-FS-21498 B72-10158 06
Wide-range dynamic pressure sensor
ARC-10263 B72-10196 03
Pressure-probe assembly for wind tunnels
ARC-10569 B72-10248 03
Thermal control for storage of cryogenic propellants in a common-bulkhead tank: A concept
ARC-10558 B72-10276 03
Nonsteady flow-direction measurement
LEWIS-11499 B72-10403 06
Low frequency sinusoidal pressure generator
LEWIS-11465 B72-10477 01
Probe measures gas and liquid mass flux in high mass flow ratio two-phase flows
LEWIS-11270 B72-10546 06
Leak test system
M-FS-21788 B72-10576 06
Diode-quad bridge for reactive transducers and FM discriminators
ARC-10364 B72-10691 01
Automated analysis of blood pressure measurements (Korotkov sound)
MSC-13999 B72-10756 05
- PRESSURE VESSEL DESIGN**
Structural design and stress analysis program for advanced composite filament-wound axisymmetric pressure vessels (COMTANK)
NPO-11943 B72-10073 09
- PRESSURE VESSELS**
Simple method for forming thin-wall pressure vessels
ARC-10511 B72-10025 08
Structural design and stress analysis program for advanced composite filament-wound axisymmetric pressure vessels (COMTANK)
NPO-11943 B72-10073 09
High torque bellows seal rotary drive
LEWIS-11813 B72-10681 07
- PRESSURIZED CABINS**
Leak test system
M-FS-21788 B72-10576 06
- PRESSURIZING**
Flexible, low-cost silicon solar cell arrays
LEWIS-11069 B72-10177 02
Expandable coating cocoon leak detection system
M-FS-21848 B72-10380 06
- PRESTRESSING**
Perload indicating turnbuckle
M-FS-21488 B72-10355 07
- PREVENTION**
Radiological control manual
M-FS-22092 B72-10460 03
- PRINTED CIRCUITS**
Improved electrical spot terminals
NPO-10034 B72-10492 01
Magnetic circuitry mutual coupling probe
M-FS-21664 B72-10535 02
- PRINTOUTS**
Programmed physiological infusion system
ARC-10447 B72-10126 05
- PRISMS**
Optical bonding agents for severe environments
ARC-10459 B72-10063 04
Solar sensor with autocollimator
ARC-10148 B72-10192 03
Optical enhancement of sensitivity in laser Doppler velocity systems
ARC-10653 B72-10310 03
An improved apochromatic wedge utilizing optical molecular contact bonding
GSFC-11082 B72-10388 03
Precision machining of steel decahedrons
M-FS-21361 B72-10597 07
- PROBABILITY DENSITY FUNCTIONS**
Program for standard statistical distributions
M-FS-21466 B72-10602 09
- PROBABILITY THEORY**
Analog table look-up device identifies unknown terrain
MSC-13816 B72-10033 03
- PROBES**
Self-calibrating remote atmospheric electromagnetic probe and data acquisition system
M-FS-21212 B72-10665 03
A multielement probe for coincident temperature and pressure measurements
LEWIS-11775 B72-10716 06
- PROBLEM SOLVING**
Optimization technique for problems with an inequality constraint
ARC-10522 B72-10222 09
Indefinite integrals of products of some exponential and trigonometric functions
LEWIS-11493 B72-10225 09
Analysis and computer programs to calculate acoustic wave properties of baffled chambers
LEWIS-11529 B72-10577 09
Redundant data management system
M-FS-21831 B72-10589 09
System/360 Computer Assisted Network Scheduling (CANS) System
GSFC-10909 B72-10599 09
Vortex-lattice FORTRAN program for estimating subsonic aerodynamic characteristics of complex planforms
LANGLEY-11047 B72-10618 09
Design criteria monograph for high-load high-speed rolling-contact bearings
LEWIS-11823 B72-10627 04
Numerical solution of potential flow problems in terms of flux components
M-FS-21751 B72-10667 09
A linear programming manual
HQ-10743 B72-10671 09
- PROCEDURES**
Standard environmental testing practices
NPO-11567 B72-10101 02

PRODUCT DEVELOPMENT

Zipper-type electrical connectors
NPO-11639 B72-10159 01
Devolatilization of polymer resins
GSFC-11358 B72-10280 04
Graphite and boron-reinforced composite materials data summary
M-FS-21691 B72-10294 04
Packaging concept for LSI beam lead integrated circuits
M-FS-21374 B72-10329 07
Portable electron beam weld chamber
MSC-17738 B72-10338 06
Stem clutch for motor driven valve
LRL-10032 B72-10345 07
Improved universal electrical connector
M-FS-14741 B72-10363 01
Bondability of RTV silicon rubber
AEC-10026 B72-10367 04
Chuck for delicate drills
ARC-10660 B72-10414 07
Aluminum nitride insulating films for MOSFET devices
NPO-11859 B72-10425 04
High-speed, self-acting shaft seal (circumferential type)
LEWIS-11274 B72-10447 07
Miniature intermittent contact switch
ARC-10450 B72-10452 01
Ball detent mechanism
M-FS-21735 B72-10470 07
Interferometric measurement of the velocity of radiating particles
HQ-10371 B72-10495 03
No-err typing aids
M-FS-15218 B72-10498 07
Tandem steerable running gear
M-FS-22012 B72-10499 07
Thermocouple tape
LEWIS-11072 B72-10515 04
Advanced high-temperature electromagnetic pump
LEWIS-11283 B72-10537 07
Self-aligning, low-pressure sealing poppet valve
MSC-17745 B72-10538 07
Film holder for curved vacuum platen
MSC-14120 B72-10542 07
Sterile chamber operation with bio-isolator suit system
LANGLEY-11054 B72-10547 05
Immobilized phosphorylase for synthesis of polysaccharides from glucose
ARC-10680 B72-10550 04
Helium window for shock-tube monochromators
NPO-11852 B72-10556 03
Vise to hold bones or other irregular objects
ARC-10679 B72-10569 07
Self-deploying boom
GSFC-10566 B72-10574 07
An absentee monitoring device
KSC-10668 B72-10578 01
Improved silver-zinc battery-terminal seals
LEWIS-11615 B72-10581 06
High pressure liquid gas pump
MSC-14087 B72-10590 06
A transmitting and reflecting diffuser for ultraviolet light
LANGLEY-10385 B72-10611 03
Flexible thermal device
M-FS-21630 B72-10612 04
Polyimide bonded graphite fluoride: A new long life solid lubricant-coating
LEWIS-11864 B72-10628 04

Magnetometer uses bismuth-selenide
LEWIS-11632 B72-10629 03
Tissue holder for experimental and Demonstration Surgery
LEWIS-11755 B72-10630 05
A process yields large quantities of pure ribosome subunits
HQ-10662 B72-10653 05
Two-speed deflection system for electron micropattern generator
M-FS-22117 B72-10668 02
Sprag solenoid brake
M-FS-21846 B72-10669 06
A shut-off valve for flexible tubing
M-FS-21731 B72-10687 07
Concentric-seating poppet
NPO-11658 B72-10704 06
Triangular wheel locomotion mechanism
NPO-11366 B72-10714 06
Design of microstrip components by computer
LANGLEY-11210 B72-10741 01
Automated analysis of blood pressure measurements (Korotkov sound)
MSC-13999 B72-10756 05
PRODUCTION ENGINEERING
Low cost anti-galling bushings
LEWIS-11724 B72-10359 08
Nondestructive testing for braze voids in thin panels by use of special coatings
LANGLEY-10486 B72-10374 08
Fabrication techniques for organic electrolyte battery
AEC-10019 B72-10428 08
Efficient wire-grid duplexer-polarized for CO2 lasers
GSFC-11403 B72-10440 03
Built-in bleeder system in laminated plastic structures
MSC-17713 B72-10562 08
Precision machining of steel decahedrons
M-FS-21361 B72-10597 07
A four-panel enclosure protects from explosion
M-FS-21847 B72-10613 06
Design criteria monograph on turbopump inducers
LEWIS-11824 B72-10635 08
Dual field alignment display and control for electron micropattern generator
M-FS-22118 B72-10646 01
Two-speed deflection system for electron micropattern generator
M-FS-22117 B72-10668 02
PROGRAMMED INSTRUCTION
Programmed physiological infusion system
ARC-10447 B72-10126 05
PROGRAMMING LANGUAGES
GPEDIT
GSFC-11308 B72-10620 09
PROJECTION
Optical alignment of electrodes on electrical discharge machines
XAC-09489 B72-10036 07
PROJECTORS
Roll function in a flight simulator
ARC-10557 B72-10417 02
PROLATE SPHEROIDS
Prolate spheroidal slosh model for fluid motion
MSC-13864 B72-10182 09
PROPANE
Metabolic simulation chamber
HQ-10776 B72-10658 05

PROPELLANT ADDITIVES

Suppressants for lowering propellant binder burning rate
ARC-10563 B72-10560 04

PROPELLANT BINDERS

Suppressants for lowering propellant binder burning rate
ARC-10563 B72-10560 04

PROPELLANT CHEMISTRY

Oxygen carrier for gas chromatographic analysis of inert gases in propellants
ARC-10574 B72-10249 04
Suppressants for lowering propellant binder burning rate
ARC-10563 B72-10560 04

PROPELLANT COMBUSTION

Fluidic ignition detection
M-FS-21498 B72-10158 06

PROPELLANT DECOMPOSITION

Propellant-powered actuator for gas generators
ARC-10484 B72-10008 03

PROPELLANT EVAPORATION

Main tank injection pressurization program
LEWIS-11368 B72-10069 08

PROPELLANT MASS RATIO

Rising-plate rheometer
ARC-10524 B72-10026 03

PROPELLANT PROPERTIES

Suppressants for lowering propellant binder burning rate
ARC-10563 B72-10560 04

PROPELLANT STORAGE

Fluidic pressure regulators
ARC-10474 B72-10162 06
Turbopump thermodynamic cooling
M-FS-21597 B72-10408 06

PROPELLANT TANKS

Main tank injection pressurization program
LEWIS-11368 B72-10069 09
Fluidic pressure regulators
ARC-10474 B72-10162 06
Thermal control for storage of cryogenic propellants in a common-bulkhead tank: A concept
ARC-10558 B72-10276 03
Safe transport of diborane in a dual refrigerant system: A concept
ARC-10559 B72-10277 03
PTFE films with improved flexibility
NPO-12028 B72-10551 04

PROPELLANT TRANSFER

Safe transport of diborane in a dual refrigerant system: A concept
ARC-10559 B72-10277 03

PROPELLANTS

Cavitating Venturi sump
ARC-10504 B72-10012 06
Zero-leakage valves
ARC-10506 B72-10024 06
New type of trifunctional alcohol
NPO-10714 B72-10553 04
Propellant feed systems transients
MSC-17848 B72-10677 06

PROPULSION SYSTEM

Fluidic pressure regulators
ARC-10474 B72-10162 06
Propulsion sizing program
MSC-14016 B72-10605 09

PROPULSION SYSTEM PERFORMANCE

Fluidic pressure regulators
ARC-10474 B72-10162 05

Rapid analysis of electric propulsion missions
 ARC-10430 872-10299 09
 Propulsion sizing program
 MSC-14016 872-10605 09
 Final report on a study of low-density nozzle flows, with application to microthrust rockets
 HQ-10761 872-10748 06
PROPYLENE
 Flexible, low-cost silicon solar cell arrays
 LEWIS-11069 872-10177 02
PROPYLENE OXIDE
 Fire retardant polyisocyanurate foam
 ARC-10280 872-10269 04
PROSTHETIC DEVICES
 Miniature intermittent contact switch
 ARC-10450 872-10271 01
 Space suit may have orthotic applications
 ARC-10275 872-10297 05
PROTECTION
 Small-scale explosive welding of aluminum
 LANGLEY-10941 872-10002 04
 Flexible, low-cost silicon solar cell arrays
 LEWIS-11069 872-10177 02
PROTECTIVE CLOTHING
 Sterile chamber operation with bio-isolator suit system
 LANGLEY-11054 872-10547 05
PROTECTIVE COATINGS
 Sheet plastic filters for solar cells
 NPO-11464 872-10090 04
 Advanced protective coating for superalloys
 LEWIS-11473 872-10150 04
 Advanced infrared photomultiplier
 M-FS-20941 872-10152 03
 A protective coating for stainless steel
 LEWIS-11267 872-10256 04
 Polymeric coatings using electronic excitation
 HQ-10698 872-10257 04
 Devolatilization of polymer resins
 GSFC-11358 872-10280 04
 Synthesis of temperature and solvent-resistant polymers
 M-FS-20848 872-10342 04
 Nondestructive testing for braze voids in thin panels by use of special coatings
 LANGLEY-10486 872-10374 08
 Expandable coating cocoon leak detection system
 M-FS-21848 872-10380 06
 Cathode for use with low density gases
 HQ-10687 872-10530 01
PROTECTORS
 Gate protective device for insulated gate field-effect transistors
 M-FS-21626 872-10149 01
 Improved intensifying screen reduces X-ray exposure
 AEC-10090 872-10232 03
PROTEINS
 Insolubilized enzymes for food synthesis
 ARC-10568 872-10247 04
 A process yields large quantities of pure ribosome subunits
 HQ-10662 872-10653 05
PROTON BEAMS
 Mass separator for low velocity ions
 ARC-10375 872-10123 03

PROTON IRRADIATION
 Improved magnesia for thermal control coatings
 ARC-10677 872-10424 04
PROTONS
 Mass separator for low velocity ions
 ARC-10375 872-10123 03
 Titanium alloy stress corrosion cracking in presence of dinitrogen tetroxide
 M-FS-21113 872-10321 04
PROTOTYPES
 Inorganic glass ceramic slip rings
 M-FS-20711 872-10313 04
PROVING
 Composite casting demonstration
 M-FS-21668 872-10266 04
 The design of an automated verification of redundant systems
 KSC-10702 872-10295 02
PSYCHOMOTOR PERFORMANCE
 New reaction tester accurate within 56 microseconds
 MSC-13604 872-10031 05
PULSE AMPLITUDE
 Speech therapy and voice recognition instrument
 HQ-10628 872-10652 05
PULSE AMPLITUDE MODULATION
 Third order digital-to-analog converter
 MSC-12458 872-10030 02
PULSE CODE MODULATION
 Third order digital-to-analog converter
 MSC-12458 872-10030 02
 An improved learning decoder
 MSC-14070 872-10573 02
PULSE DURATION
 Lightning flash detection system
 ARC-10562 872-10272 02
 Oscillation of laser-beam intensity as observed with beam splitters
 ARC-10694 872-10572 03
PULSE DURATION MODULATION
 Oxygen pressure control for electrolysis cells
 ARC-10250 872-10074 02
 Pulse-width-modulated device for precision temperature control
 NPO-11407 872-10507 02
PULSE FREQUENCY MODULATION
 Implanted telemeter for electrocardiogram and body temperature
 XAC-08505 872-10035 05
 Lightweight, broad-band spectrum analyzer
 ARC-10405 872-10060 01
PULSE GENERATORS
 Pulse excitation of bolometer bridges
 ARC-10292 872-10054 01
 Spark ultrasonic transducer
 M-FS-21233 872-10594 04
PULSE HEATING
 Pulsed high-power arc heater with improved cathode and triggering mechanism
 ARC-10173 872-10048 03
PULSE MODULATION
 Programmed physiological infusion system
 ARC-10447 872-10126 05
PULSE RATE
 Ear oximeter-transducer monitors four physiological responses
 XAC-05422 872-10224 05
 Improved temperature control of liquid cooling garments
 MSC-13917 872-10281 05

Ultrasonic bone densitometer
 M-FS-20994 872-10450 05
PULSES
 Remote sensing X-ray spectrometer
 MSC-13978 872-10016 03
 High noise immunity one shot
 ARC-10137 872-10047 01
 Pulse excitation of bolometer bridges
 ARC-10292 872-10054 01
 Time-lapse camera for microscopy
 ARC-10423 872-10125 05
 Heart simulator
 M-FS-21609 872-10131 02
PUMP IMPELLERS
 A method for calculating the effects of design errors and measurement errors on pump performance
 LEWIS-11503 872-10292 07
PUMPS
 Programmed physiological infusion system
 ARC-10447 872-10126 05
 Preventing oil migration in vacuum systems
 GSFC-11253 872-10129 04
 High pressure liquid gas pump
 MSC-14087 872-10590 06
 Implantable drug therapy device: A concept
 NPO-11934 872-10708 05
 Optimization of fluid line sizes with pumping power penalty IBM-360 computer program
 MSC-17930 872-10722 06
 Thermal-powered reciprocating pump
 NPO-11417 872-10723 06
PUNCHED CARDS
 Source deck compression and update program (CAPS)
 GSFC-11545 872-10619 09
 FORTRAN read package
 MSC-14161 872-10750 09
PUNCHED TAPES
 Programmed physiological infusion system
 ARC-10447 872-10126 05
 A system for automatic analysis of blood pressure data for digital computer entry
 LEWIS-11751 872-10632 05
PUPIL SIZE
 Projections of scan patterns on human retina
 ARC-10181 872-10193 05
PURGING
 An economical vent cover
 M-FS-20692 872-10348 07
 Helium leak measurements using CO₂ as a carrier
 M-FS-21742 872-10354 03
PURIFICATION
 Comparison of catalyst activity
 ARC-10493 872-10201 04
 Electron beam chemistry produces high purity metals
 LEWIS-11639 872-10439 04
PURITY
 Proposed semiconductor film improvement
 HQ-10685 872-10438 04
 Improved method for reclaiming vacuum diffusion pump oil
 LEWIS-11647 872-10511 04

SUBJECT INDEX

PYROLYSIS

Chemical modification of poly(p-phenylene) for use in ablative compositions

ARC-10135 872-10451 04

PYROLYTIC GRAPHITE

Specimen for high-temperature tensile tests

ARC-10531 872-10028 04

Isotropic pyrolytic carbons

ARC-10532 872-10029 04

PYRRONES (TRADEMARK)

Water purification by reverse osmosis using heterocyclic polymer membranes

LANGLEY-10514 872-10230 04

Q

Q SWITCHED LASERS

A bi-stable optical device

HQ-10701 872-10655 03

QUADRATIC EQUATIONS

Algorithm for Liapunov stability analysis

ARC-10498 872-10023 09

QUADRATURES

Control of acceleration in sine/random vibration tests

NPO-11482 872-10091 02

QUALITATIVE ANALYSIS

Sunspot analysis and prediction

M-FS-21724 872-10317 03

Aerotherm chemical equilibrium (ACE) computer program

LEWIS-11722 872-10739 09

QUALITY CONTROL

Analog table look-up device identifies unknown terrain

MSC-13816 872-10033 03

Standard environmental testing practices

NPO-11567 872-10101 02

Devolatilization of polymer resins

GSFC-11358 872-10280 04

Noncontact torque measurement using stroboscopic techniques

MSC-12282 872-10332 07

Mathematical techniques for estimating operational readiness of complex systems

MSC-17694 872-10335 09

Evaluating foam heterogeneity

AEC-10046 872-10365 04

Expandable coating cocoon leak detection system

M-FS-21848 872-10380 06

Leak decay method of helium bombardment leak testing

M-FS-24109 872-10381 06

Manufacturing contamination prevention handbook

M-FS-19113 872-10394 08

Acoustic emission used as weld quality monitor

AEC-10018 872-10427 08

A system for early warning of bearing failure

M-FS-21877 872-10494 06

Magnetic circuitry mutual coupling probe

M-FS-21664 872-10535 02

Micro-scale crease-and-fold apparatus

NPO-12029 872-10552 06

Design criteria monograph for high-load high-speed rolling-contact bearings

LEWIS-11823 872-10627 04

Redundancy approaches in bubble domain memories

M-FS-21915 872-10643 01

A monostrain test apparatus

M-FS-24221 872-10679 06

An optical quality meter suitable for cryogenic liquids

LEWIS-11814 872-10686 06

New detection method for rolling element and bearing defects

M-FS-21911 872-10689 06

QUANTITATIVE ANALYSIS

Hydraulic modeling of heat dispersion in large lakes

AEC-10003 872-10039 03

Hexapole magnet field analysis

GSFC-10995 872-10113 03

Mercury in the environment

AEC-10048 872-10233 05

Sunspot analysis and prediction

M-FS-21724 872-10317 03

Composite mobile system for holographic nondestructive testing

M-FS-21704 872-10351 03

Aerotherm chemical equilibrium (ACE) computer program

LEWIS-11722 872-10739 09

QUARTZ

Improved laboratory gradiometer can be a field survey instrument

MSC-13980 872-10001 03

Solar experiment alignment system

ARC-10471 872-10020 03

Beryllium thin films for resistor applications

ARC-10485 872-10021 01

Pulsed high-power arc heater with improved cathode and triggering mechanism

ARC-10173 872-10048 03

Nematic liquid crystals for optical shutters: A concept

NPO-11367 872-10083 03

Particle detection by a light-scattering technique

ARC-10384 872-10160 03

Solar sensor with autocollimator

ARC-10148 872-10192 03

Scanning technique for tracking small eye-movements

ARC-10488 872-10220 05

Interferometric rotation sensor

ARC-10278 872-10274 03

An absorption spectrum amplifier for determining gas composition

HQ-10752 872-10524 03

Optimal read/write memory system components

M-FS-22044 872-10697 01

Thin-film ultraviolet detector and spectrometer

NPO-11432 872-10701 03

QUARTZ CRYSTALS

Piezoelectric transducer mosaic

ARC-10509 872-10014 01

Quartz crystal microbalance use in biological studies

NPO-11346 872-10243 05

QUENCHING (COOLING)

Manganese bismuth thin film for large capacity digital memories

M-FS-21246 872-10107 03

RADIATION HAZARDS

R

RADAR IMAGERY

New pulsing technique may improve radar ranging systems

ARC-10600 872-10564 02

RADAR RANGE

New pulsing technique may improve radar ranging systems

ARC-10600 872-10564 02

RADAR TRACKING

Atmospheric density variations related to internal gravity waves

M-FS-21637 872-10143 03

RADAR TRANSMISSION

New pulsing technique may improve radar ranging systems

ARC-10600 872-10564 02

RADIAL FLOW

Experimental study of flow distribution with circumferential manifolds

LEWIS-11649 872-10738 06

RADIANCE

High solar intensity radiometer

LEWIS-11533 872-10130 03

RADIANT HEATING

Device for measuring electric fields

ARC-10164 872-10148 03

RADIATION

Automatic lightning location system

AEC-10077 872-10372 02

RADIATION COUNTERS

Particle detection by a light-scattering technique

ARC-10384 872-10160 03

RADIATION DAMAGE

Prevention of cathode damage from positive ion bombardment

HQ-10688 872-10654 03

A study of radiation environment in space and its biological effects

HQ-10798 872-10662 03

RADIATION DETECTORS

Remote sensing X-ray spectrometer

MSC-13978 872-10016 03

A liquid radiation detector with high spatial resolution

MSC-13965 872-10034 03

Simple dynamic electromagnetic radiation detector

LEWIS-11159 872-10227 03

A Compton scatter attenuation gamma ray spectrometer

M-FS-21441 872-10487 03

Thin-film ultraviolet detector and spectrometer

NPO-11432 872-10701 03

RADIATION DOSAGE

Improved intensifying screen reduces X-ray exposure

AEC-10090 872-10232 03

Radiological control manual

M-FS-22092 872-10460 03

RADIATION EFFECTS

Electron beam chemistry produces high purity metals

LEWIS-11639 872-10439 04

Irradiation of MOS-FET devices to provide desired logic functions

GSFC-11061 872-10719 01

RADIATION HAZARDS

A study of radiation environment in space and its biological effects

HQ-10798 872-10662 03

RADIATION MEASUREMENT

- High solar intensity radiometer
LEWIS-11533 B72-10130 03
Radiological control manual
M-FS-22092 B72-10460 03
A Compton scatter attenuation gamma ray spectrometer
M-FS-21441 B72-10487 03

RADIATION MEASURING INSTRUMENTS

- Helium window for shock-tube monochromators
NPO-11852 B72-10556 03

RADIATION PROTECTION

- Radioisotope thermionic power supply for spacecraft
ARC-10438 B72-10212 03
Radiological control manual
M-FS-22092 B72-10460 03
Flexible shielding system for radiation protection
LRL-10028 B72-10500 03

RADIATION SHIELDING

- An empirical relationship for the penetration of 1 to 3 MeV electrons
LEWIS-11495 B72-10144 04
Flexible shielding system for radiation protection
LRL-10028 B72-10500 03

RADIATIVE HEAT TRANSFER

- Radioisotope thermionic power supply for spacecraft
ARC-10438 B72-10212 03

RADIO ANTENNAS

- Radio direction finder
NPO-11573 B72-10508 02

RADIO COMMUNICATION

- Mathematical analysis for the performance assessment of space communication parameters, IBM-360 version
GSFC-11523 B72-10675 09

RADIO DIRECTION FINDERS

- Radio direction finder
NPO-11573 B72-10508 02

RADIO FREQUENCIES

- Arc protection system for high-power RF amplifiers
NPO-11560 B72-10099 02
Simple, reproducible methods for thermal shock testing of brittle materials
NUC-11020 B72-10228 06
Broadband RF-distribution amplifier
NPO-11401 B72-10245 01
Narrowband, crystal-controlled biomedical telemetry system
ARC-10708 B72-10255 01
Properties of ionization breakdown of air at microwave frequencies and optimization of component dimensions for maximum microwave power
M-FS-21924 B72-10316 01
Interferometer using RF switching matrix
GSFC-11051 B72-10462 01
Wide-range nuclear magnetic resonance detector
LEWIS-11513 B72-10478 03

RADIO FREQUENCY INTERFERENCE

- A panel space for RFI shielding gaskets: a concept
MSC-17827 B72-10735 01

RADIO FREQUENCY SHIELDING

- A panel space for RFI shielding gaskets: a concept
MSC-17827 B72-10735 01

RADIO RECEIVERS

- Implanted telemeter for electrocardiogram and body temperature
XAC-08505 B72-10035 05
Radio direction finder
NPO-11573 B72-10508 02

RADIOACTIVE MATERIALS

- Radiological control manual
M-FS-22092 B72-10460 03

RADIOACTIVITY

- Radioisotope thermionic power supply for spacecraft
ARC-10438 B72-10212 03

RADIOGRAPHY

- Nondestructive-test standards for evaluation of fiber-reinforced composites
M-FS-21288 B72-10157 04
Improved intensifying screen reduces X-ray exposure
AEC-10090 B72-10232 03
Radiation-induced nickel deposits
LEWIS-10965 B72-10456 04
Neutron radiographic viewing system
M-FS-22024 B72-10468 02

RADIOLYSIS

- Electron beam chemistry produces high purity metals
LEWIS-11639 B72-10439 04

RADIOMETERS

- High solar intensity radiometer
LEWIS-11533 B72-10130 03
Zone radiometer measurements on a model rocket exhaust plume
M-FS-21693 B72-10357 02
High intensity solar cell radiometer
LEWIS-11549 B72-10480 01
Assessment of water pollution by airborne measurement of chlorophyll
ARC-10648 B72-10566 04
Program to produce horizontal stereographic print maps from Nimbus HRIR data
GSFC-11397 B72-10606 09

RAMS (PRESSES)

- Fabrication of large ceramic electrolyte disks
ARC-10320 B72-10202 03

RANDOM NOISE

- A study of the power spectral density of an FM signal
M-FS-21070 B72-10361 02

RANDOM PROCESSES

- Spectral analysis of multiple time series
M-FS-18859 B72-10614 09

RANDOM VARIABLES

- Programmed physiological infusion system
ARC-10447 B72-10126 05

RANDOM VIBRATION

- Improvements of Zeyded method for calculating flutter of flat panels
M-FS-20955 B72-10399 06
Spectral analysis of multiple time series
M-FS-18859 B72-10614 09

RANGE (EXTREMES)

- Pulse-width-modulated device for precision temperature control
NPO-11407 B72-10507 02

RANGE FINDERS

- Lightning flash detection system
ARC-10562 B72-10272 02

RANKING CYCLE

- Boiler for generating high quality vapor
LEWIS-11345 B72-10135 06

- Advanced high-temperature electromagnetic pump
LEWIS-11283 B72-10537 07

RARE GASES

- Fluidic pressure regulators
ARC-10474 B72-10162 06
Oxygen carrier for gas chromatographic analysis of inert gases in propellants
ARC-10574 B72-10249 04
A sensitive image intensifier which uses inert gas
LRL-10024 B72-10312 03
Liquid methane gelled with methanol and water reduces rate of nitrogen absorption
LEWIS-11574 B72-10330 06
Sonic limitations and startup problems of heat pipes
AEC-10036 B72-10368 03
Proposed semiconductor film improvement
HQ-10685 B72-10438 04

RAREFIED GASES

- Metastable atom probe for measuring electron beam density profiles
M-FS-21593 B72-10485 03

RATIONS

- Quick, easy to prepare freeze-dried soups
MSC-14003 B72-10017 05

RATIOS

- An empirical relationship for the penetration of 1 to 3 MeV electrons
LEWIS-11495 B72-10144 04

RC CIRCUITS

- Low phase-shift amplifier
NPO-11663 B72-10185 01

REACTION

- Multiple reaction mass and isolation system
M-FS-24119 B72-10441 06

REACTION KINETICS

- Chemical kinetics computer program for static and flow reactions
LEWIS-11467 B72-10580 04
Aerotherm chemical equilibrium (ACE) computer program
LEWIS-11722 B72-10739 09

REACTION TIME

- New reaction tester accurate within 56 microseconds
MSC-13604 B72-10031 05
Visual sensitivity tester
ARC-10329 B72-10203 05

REACTIVITY

- Titanium alloy stress corrosion cracking in presence of dinitrogen tetroxide
M-FS-21113 B72-10321 04

REACTORS

- Hydrogen eliminator
ARC-10408 B72-10208 03

READERS

- Programmed physiological infusion system
ARC-10447 B72-10126 05

REAL GASES

- Accurate measurement of gas volumes by liquid displacement
ARC-10723 B72-10699 03

REAL TIME OPERATION

- Improved system for measuring speed of rotating machinery
ARC-10413 B72-10179 07

REBREATHING

- Aircrew oxygen system
ARC-10247 B72-10195 05

SUBJECT INDEX

RECEIVERS

- Arc protection system for high-power RF amplifiers
NPO-11560 B72-10099 02
- Signal to noise measurement circuit
GSFC-11239 B72-10102 01
- Vortex servovalve for fluidic or electrical input
ARC-10155 B72-10173 07
- Narrowband, crystal-controlled biomedical telemetry system
ARC-10708 B72-10255 01

RECIPROCATION

- A rapid, precise, reciprocating-movement color filter system
GSFC-11255 B72-10497 07
- Thermal-powered reciprocating pump
NPO-11417 B72-10723 06

RECLAMATION

- Oxygen reclamation with solid oxide electrolytes
ARC-10487 B72-10273 03

RECORDING

- Erasable holographic medium using cis-trans isomerization
M-FS-22062 B72-10720 03

RECORDS

- Video information system
M-FS-21711 B72-10267 09

RECOVERABILITY

- Oxygen-layer structure improves lithium-doped silicon solar cells
NPO-11403 B72-10085 03

RECRYSTALLIZATION

- Beryllium thin films for resistor applications
ARC-10485 B72-10021 01

RECTIFIERS

- Circuit controls turn-on current
NPO-11339 B72-10079 01
- Tornado detector and alarm
M-FS-20915 B72-10106 01
- High temperature gallium phosphide rectifiers
LEWIS-11804 B72-10673 01

REDUNDANCY

- Piezoelectric actuator uses sequentially-excited multiple elements: A concept
NPO-11527 B72-10096 01
- Techniques for improving reliability of computers
M-FS-21326 B72-10109 02
- Dual redundant core memory systems
MSC-13993 B72-10261 09
- The design of an automated verification of redundant systems
KSC-10702 B72-10295 02
- Ball detent mechanism
M-FS-21735 B72-10470 07
- Redundant data management system
M-FS-21831 B72-10589 09
- Redundancy approaches in bubble domain memories
M-FS-21915 B72-10643 01

REDUNDANT COMPONENTS

- Analytic procedures for determining dimensional redundancies in electronic devices
HQ-10709 B72-10656 09

REFERENCE SYSTEMS

- Automatic computer subprogram selection from application-program libraries - ALTUB
LANGLEY-11124 B72-10607 09

- Program for creating an operating system generation cross reference index (SGINDEX)
GSFC-11612 B72-10650 09

REFLECTANCE

- Program for determination of radiation interchange factors
MSC-17563 B72-10071 09
- Scanning technique for tracking small eye-movements
ARC-10488 B72-10220 05
- Interferometric rotation sensor
ARC-10278 B72-10274 03
- Optical device for producing color line scan display from monochrome oscilloscope traces
LANGLEY-10896 B72-10375 03
- Laser beam deflection control: A concept
MSC-13814 B72-10411 02
- Unsupported thin film beam splitter
GSFC-10525 B72-10471 02

REFLECTION

- Hybrid holographic system
M-FS-20074 B72-10260 03
- Optical enhancement of sensitivity in laser Doppler velocity systems
ARC-10653 B72-10310 03

REFLECTORS

- Compensating subreflector for two-reflector antennas: A concept
NPO-11503 B72-10093 06
- Conical electromagnetic radiation flux concentrator
M-FS-21613 B72-10147 03
- dual-beam actinic light source for photosynthesis research
ARC-10351 B72-10205 05
- Redirecting electromagnetic beams through wide angles
ARC-10602 B72-10307 03

REFRACTION

- Evaluation of jet engine noise
M-FS-21416 B72-10263 03
- An improved apochromatic wedge utilizing optical molecular contact bonding
GSFC-11082 B72-10388 03

REFRACTIVITY

- Optical bonding agents for severe environments
ARC-10459 B72-10063 04
- Erasable holographic medium using cis-trans isomerization
M-FS-22062 B72-10720 03

REFRACTORY MATERIALS

- Specimen for high-temperature tensile tests
ARC-10531 B72-10028 04
- Floating zone process for drawing small diameter fibers of refractory materials
LEWIS-11380 B72-10491 04

REFRACTORY METAL ALLOYS

- Insulating effectiveness of self-spacing dimpled foil
LEWIS-10941 B72-10406 04
- Development of chip passivated monolithic complementary MISFET circuits with beam leads
M-FS-22264 B72-10696 01

REFRACTORY METALS

- Long-term drift of thermocouples at 1600 K
LEWIS-11471 B72-10176 01
- High voltage electrical insulation coating for refractory materials
LEWIS-11479 B72-10290 04

REINFORCING FIBERS

- Tungsten-reinforced tantalum
LEWIS-11750 B72-10684 04

REFRIGERATING

- Free-radical solution-polymerization of trifluoronitrosomethane with tetrafluoroethylene
ARC-10567 B72-10419 04
- Fill and vent quick disconnect
M-FS-21822 B72-10645 07

REFRIGERATING MACHINERY

- Two-stage coaxial gas compressor
ARC-10426 B72-10210 06
- Thermal control for storage of cryogenic propellants in a common-bulkhead tank: A concept
ARC-10558 B72-10276 03
- Safe transport of diborane in a dual refrigerant system: A concept
ARC-10559 B72-10277 03

REGENERATION (ENGINEERING)

- Pseudo-saturating power converter
NPO-11368 B72-10042 01
- Space-suit carbon dioxide absorption system: A concept
ARC-10546 B72-10168 05

REGENERATIVE COOLING

- Fabrication of cooled, graphite-lined structures
LEWIS-11741 B72-10593 08

REGENERATORS

- Silver-chlorine fuel cell: A concept
ARC-10491 B72-10221 03

REGISTERS (COMPUTERS)

- Dual redundant core memory systems
MSC-13993 B72-10261 09

REGRESSION ANALYSIS

- Sunspot analysis and prediction
M-FS-21724 B72-10317 03
- Method for nonlinear exponential regression analysis
M-FS-21965 B72-10622 09

REGULATORS

- Ball detent mechanism
M-FS-21735 B72-10470 07

REINFORCED PLASTICS

- Built-in bleeder system in laminated plastic structures
MSC-17713 B72-10562 08

REINFORCED SHELLS

- Isogrid structure
M-FS-21567 B72-10323 06

REINFORCEMENT (STRUCTURES)

- Nondestructive-test standards for evaluation of fiber-reinforced composites
M-FS-21288 B72-10157 04
- New polyimide polymer has excellent processing characteristics with improved thermo-oxidative and hydrolytic stabilities
LEWIS-11323 B72-10175 04
- Improved method for producing metal-reinforced ceramics
AEC-10070 B72-10234 04
- Isogrid structure
M-FS-21567 B72-10323 06
- Titanium reinforced boron polyimide composite
M-FS-21916 B72-10353 04

REINFORCING FIBERS

- New polyimide polymer has excellent processing characteristics with improved thermo-oxidative and hydrolytic stabilities
LEWIS-11323 B72-10175 04
- Floating zone process for drawing small diameter fibers of refractory materials
LEWIS-11380 B72-10491 04

RELEASING

Fluid operated quick release mechanism
M-FS-20205 872-10640 07

RELIABILITY

Techniques for improving reliability of computers
M-FS-21326 872-10109 02
Flexible desk top computers using Large Scale Integration (L.S.I.) chips
M-FS-21277 872-10112 01
Guidelines for fabrication of hybrid microcircuits
M-FS-21964 872-10393 01

RELIABILITY ANALYSIS

Reliability analysis based on operational success criteria
ARC-10490 872-10214 09
Leak decay method of helium bombardment leak testing
M-FS-24109 872-10381 06
Improved operation of rechargeable oxygen electrodes
LEWIS-11619 872-10479 01
A system for early warning of bearing failure
M-FS-21877 872-10494 06
Redundancy approaches in bubble domain memories
M-FS-21915 872-10643 01
Mathematical analysis for the performance assessment of space communication parameters, IBM-360 version
GSFC-11523 872-10675 09

RELIABILITY ENGINEERING

Zipper-type electrical connectors
NPO-11639 872-10159 01
Mathematical techniques for estimating operational readiness of complex systems
MSC-17694 872-10335 09
Expandable coating cocoon leak detection system
M-FS-21848 872-10380 06
Specification guidelines for hybrid microcircuits
M-FS-22090 872-10474 01
A tool for measuring elevator cable tension
KSC-10708 872-10509 07
Improved silver-zinc battery-terminal seals
LEWIS-11615 872-10581 06
Design criteria monograph for high-load high-speed rolling-contact bearings
LEWIS-11823 872-10627 04
Design criteria monograph for pressurized metal cases
LEWIS-11835 872-10633 04
Design criteria monograph on solid rocket motor igniters
LEWIS-11826 872-10715 06

RELIEF VALVES

Thermal control for storage of cryogenic propellants in a common-bulkhead tank: A concept
ARC-10558 872-10276 03
Safe transport of diborane in a dual refrigerant system: A concept
ARC-10559 872-10277 03
Multipurpose top for liquid helium Dewar
ARC-10533 872-10302 03
An economical vent cover
M-FS-20692 872-10348 07
High-volume pressure relief valve
KSC-10707 872-10536 07

REMOTE CONSOLES

Video information system
M-FS-21711 872-10267 09

REMOTE CONTROL

Rising-plate rheometer
ARC-10524 872-10026 03
Solenoid-operated swing-check valve
XAC-10048 872-10037 06
Voltage-tunable parallel-T filter for remote operation
NPO-11165 872-10077 01
Tornado detector and alarm
M-FS-20915 872-10106 01
Frequency switch keyed oscillator
ARC-10412 872-10124 01
Cine recording ophthalmoscope
ARC-10399 872-10189 05
Miniature intermittent contact switch
ARC-10450 872-10271 01
Remote control flare stack igniter for combustible gases
M-FS-21675 872-10352 07
A valve concept for remote fluid flow control
M-FS-16097 872-10400 07
Electromagnetic rheometer
ARC-10525 872-10416 04
Patient's breath controls comfort devices
LANGLEY-11138 872-10533 05
Dc motor proportional control system for orthotic devices
M-FS-21573 872-10617 05
A proposed remote manipulator system: A concept
MSC-14245 872-10733 06

REMOTE SENSORS

Remote sensing X-ray spectrometer
MSC-13978 872-10016 03
Analog table look-up device identifies unknown terrain
MSC-13816 872-10033 03
Indexing film with a fluidic sensor
MSC-14117 872-10501 02
Overflow sensor for cryogenic-fluid vessels
NPO-10619 872-10554 03
Assessment of water pollution by airborne measurement of chlorophyll
ARC-10648 872-10566 04
Remote measurement of the water content of snowpacks
ARC-10651 872-10567 03
An absentee monitoring device
KSC-10668 872-10578 01
Metabolic simulation chamber
HQ-10776 872-10658 05
Self-calibrating remote atmospheric electromagnetic probe and data acquisition system
M-FS-21212 872-10665 03

REMOVAL

Free-radical solution-polymerization of trifluoronitrosomethane with tetrafluoroethylene
ARC-10567 872-10419 04
A concept for universal pliers
KSC-10768 872-10685 07
Electro-chemical grinding
LANGLEY-10801 872-10744 08
Improved photoetching fabrication method
LEWIS-11268 872-10745 08
RENE 41
Bonding titanium to Rene 41 alloy
ARC-10311 872-10041 08

Strain gage attachment by spot welding reduces the fatigue strength of Ti-6Al-4V, Rene 41, and Inconel X
LANGLEY-10930 872-10339 04

REPLACING

Positive fast sealing union connections
LEWIS-11290 872-10133 06

REPORTS

Effect of thermal discharges on the mass energy balance of Lake Michigan
AEC-10013 872-10004 03
Titanium alloy stress corrosion cracking in presence of dinitrogen tetroxide
M-FS-21113 872-10321 04
Acoustic spectral analysis and testing techniques
NPO-11554 872-10341 03

REPRESENTATIONS

Graph for locked rotor current
MSC-15703 872-10075 06

REPRODUCTION (COPYING)

Dual field alignment display and control for electron micropattern generator
M-FS-22118 872-10646 01

RESCUE OPERATIONS

Cylindrically shaped rope ladder
M-FS-16319 872-10688 07

RESEARCH

Manganese bismuth thin film for large capacity digital memories
M-FS-21246 872-10107 03

RESEARCH AND DEVELOPMENT

Research on bearing lubricants for use in a high vacuum
M-FS-22119 872-10469 04

RESERVOIRS

Hydrophobic liquid/gas separator for heat pipes
ARC-10656 872-10549 03

RESILIENCE

Zero-leakage valves
ARC-10506 872-10024 06

RESINS

A method of isolating organic compounds present in water
AEC-10010 872-10044 04
Devolatilization of polymer resins
GSFC-11358 872-10280 04
An approach to real-time process control of semiconductor wire-bonding
M-FS-21558 872-10644 08

RESISTANCE HEATING

Isotropic pyrolytic carbons
ARC-10532 872-10029 04
Repeatable method of thermal stress fracture test of brittle materials
NUC-11019 872-10258 06
A simple, efficient resistance soldering apparatus
GSFC-10913 872-10649 08

RESISTANCE THERMOMETERS

Low temperature scale for a 1 to 20 degree Kelvin region
AEC-10007 872-10146 03
Simple non-destructive tests for electroexplosive devices
NPO-11563 872-10315 01

A compact battery powered digital thermometer
MSC-14084 872-10545 02

RESISTORS

Beryllium thin films for resistor applications
ARC-10485 872-10021 01
High noise immunity one shot
ARC-10137 872-10047 01

- Inertial reference unit
NPO-11518 72-10094 02
Time-adjusted variable resistor
NPO-11306 72-10116 01
Differential input preamplifier
ARC-10489 72-10165 01
Driver circuit for inductive loads
ARC-10073 72-10268 01
Multipurpose top for liquid helium Dewar
ARC-10533 72-10302 03
Temperature control of a cryogenic bath
HQ-10788 72-10532 03
- RESOLUTION**
Remote sensing X-ray spectrometer
MSC-13978 72-10016 03
Solar experiment alignment system
ARC-10471 72-10020 03
Low noise electromagnetic flowmeter
M-FS-21291 72-10108 02
Conical electromagnetic radiation flux concentrator
M-FS-21613 72-10147 03
Annular objective apertures improve resolution of electron microscopes
ARC-10448 72-10171 03
Solid state television camera has no imaging tube
M-FS-21553 72-10254 02
Hybrid holographic system
M-FS-20074 72-10260 03
- RESONANCE**
Prediction of flow-induced failures of braided flexible hoses and bellows
M-FS-19004 72-10407 06
- RESONANT FREQUENCIES**
Improved audio reproduction system
ARC-10404 72-10059 01
Microresonator for damping flow oscillations
M-FS-18401 72-10105 06
Frequency switch keyed oscillator
ARC-10412 72-10124 01
Wide-range dynamic pressure sensor
ARC-10263 72-10196 03
A sonic transducer to detect fluid leaks
KSC-10704 72-10376 01
Simple turbine balancing test apparatus
LEWIS-11658 72-10377 07
A system for early warning of bearing failure
M-FS-21877 72-10494 06
- RESONANT VIBRATION**
Microresonator for damping flow oscillations
M-FS-18401 72-10105 06
Wide-range dynamic pressure sensor
ARC-10263 72-10196 03
- RESONATORS**
Reduction of fan noise: A concept
ARC-10312 72-10040 06
Microresonator for damping flow oscillations
M-FS-18401 72-10105 06
Diatom infrared gasdynamic laser permits selection of wavelengths
ARC-10370 72-10206 03
- RESPIRATION**
Simple gas chromatographic system for analysis of microbial respiratory gases
ARC-10403 72-10207 03
Counter lung
ARC-10248 72-10219 05
- Balanced-bellows spirometer
XAC-01547 72-10279 05
A continuous physiological data collector
M-FS-20835 72-10402 05
Electronic circuit detects left ventricular ejection events in cardiovascular system
LEWIS-11581 72-10512 05
Drive mechanism for production of simulated human breath
HQ-10777 72-10659 05
Temperature and humidity control of simulated human breath
HQ-10778 72-10660 05
Simulated breath waveform control
HQ-10779 72-10661 05
- RESPIRATORY DISEASES**
A continuous physiological data collector
M-FS-20835 72-10402 05
- RESUSCITATION**
Breathing-metabolic simulator
HQ-10766 72-10657 05
Metabolic simulation chamber
HQ-10776 72-10658 05
- RETENTION**
Low-friction ball-and-socket
NPO-11348 72-10081 08
- RETICLES**
Solar sensor with autocollimator
ARC-10148 72-10192 03
- RETINA**
Cine recording ophthalmoscope
ARC-10399 72-10189 05
Projections of scan patterns on human retina
ARC-10181 72-10193 05
Visual sensitivity tester
ARC-10329 72-10203 05
- RETINAL IMAGES**
Scanning technique for tracking small eye-movements
ARC-10488 72-10220 05
- RETROCKET ENGINES**
Optimized braking of landing vehicles with atmospheric drag
NPO-11402 72-10084 06
- RETROTHRUST**
Optimized braking of landing vehicles with atmospheric drag
NPO-11402 72-10084 06
- REVERBERATION**
Response of a panel structure to reverberant acoustic excitation
M-FS-21774 72-10603 06
- REVOLVING**
Misfit and miss-drag programs
LANGLEY-10932 72-10153 09
- REYNOLDS NUMBER**
Cryogenic gel flow viscometer
ARC-10523 72-10180 03
Reduction of noise in gyro outputs
NPO-11603 72-10743 06
- RHEOMETERS**
Electromagnetic rheometer
ARC-10525 72-10416 04
- RIBBONS**
Small-scale explosive welding of aluminum
LANGLEY-10941 72-10002 04
- RIBOSE**
A process yields large quantities of pure ribosome subunits
HQ-10662 72-10653 05
- RIBS (SUPPORTS)**
Isogrid structure
M-FS-21567 72-10323 06
- RICCATI EQUATION**
Variable dimension automatic synthesis programs (VASP)
ARC-10616 72-10065 09
- RIGID STRUCTURES**
Prolate spheroidal slosh model for fluid motion
MSC-13864 72-10182 09
- RING STRUCTURES**
Dispersion ring reduces injector orifice-to-orifice flow variation
MSC-15953 72-10117 07
Inorganic glass ceramic slip rings
M-FS-20711 72-10313 04
- RIPPLES**
Piezoelectric actuator uses sequentially-excited multiple elements: A concept
NPO-11527 72-10096 01
- ROASTING**
Plasma calcining of pigment particles for thermal control coatings
M-FS-21267 72-10320 04
High strength high modulus ceramic fiber
M-FS-21266 72-10592 04
- ROCKET ENGINE CASES**
Design criteria monograph for pressurized metal cases
LEWIS-11835 72-10633 04
- ROCKET ENGINE DESIGN**
Zone radiometer measurements on a model rocket exhaust plume
M-FS-21693 72-10357 02
Design criteria monograph for pressurized metal cases
LEWIS-11835 72-10633 04
- ROCKET ENGINES**
Propellant-powered actuator for gas generators
ARC-10484 72-10008 03
Fluidic pressure regulators
ARC-10474 72-10162 06
New compression molding process of thermosetting plastic compounds
LANGLEY-10782 72-10356 08
Fabrication of cooled, graphite-lined structures
LEWIS-11741 72-10593 08
Study of high altitude plume impingement
M-FS-21414 72-10601 09
Improved photoetching fabrication method
LEWIS-11268 72-10745 08
- ROCKET EXHAUST**
Zone radiometer measurements on a model rocket exhaust plume
M-FS-21693 72-10357 02
Study of high altitude plume impingement
M-FS-21414 72-10601 09
- ROCKET NOZZLES**
Gas leak-detection system
NPO-11405 72-10087 03
Vortex servovalve for fluidic or electrical input
ARC-10155 72-10173 07
New compression molding process of thermosetting plastic compounds
LANGLEY-10782 72-10356 08
- ROCKET THRUST**
Vortex servovalve for fluidic or electrical input
ARC-10155 72-10173 07
- ROCKS**
Planetary rock corer and drill concepts
NPO-11416 72-10398 07

An improved gas extraction furnace
MSC-14138 B72-10544 04

RODS
Specimen for high-temperature tensile tests
ARC-10531 B72-10028 04
Squib-actuated disconnect device
NPO-11544 B72-10097 06
Hydraulic valve lifter remover
M-FS-21377 B72-10110 07
Dynamic valve to supply constant total thrust to two orifice jets
ARC-10239 B72-10120 07
Fabrication of uniaxial filament-reinforced epoxy tubes for structural application
LANGLEY-10203 B72-10340 04
Electromagnetic rheometer
ARC-10525 B72-10416 04

ROLL
Inertial reference unit
NPO-11518 B72-10094 02
Roll function in a flight simulator
ARC-10557 B72-10417 02

ROLL FORMING
Dispersion-strengthened chromium alloy
LEWIS-10982 B72-10378 04

ROLLER BEARINGS
Turbopump radial and axial rotor support system
M-FS-21495 B72-10264 07
Design criteria monograph for high-load high-speed rolling-contact bearings
LEWIS-11823 B72-10627 04

ROLLERS
Tubing cutter
NPO-11524 B72-10095 07
A cable stabilizer for outdoor elevators
KSC-10513 B72-10283 07

ROLLING MOMENTS
Common bearing material has highest fatigue life at moderate temperature
LEWIS-11592 B72-10382 04

ROOM TEMPERATURE
Magnetic-doped alloys with very large Seebeck coefficients
M-FS-21410 B72-10318 04
Strain gage attachment by spot welding reduces the fatigue strength of Ti-6Al-4V, Rene 41, and Inconel X
LANGLEY-10930 B72-10339 04
Adhesive for aluminum withstands cryogenic temperatures
M-FS-16848 B72-10346 04
High strength high modulus ceramic fiber
M-FS-21266 B72-10592 04
High field CdS detector for infrared radiation
LANGLEY-11027 B72-10725 04

ROTARY WINGS
Gyro spring augmentation system
ARC-10496 B72-10010 06
Twistable mold for helicopter blades
ARC-10682 B72-10432 08
Effects of nonuniform swash-plate stiffness on coupled blade-control system dynamics and stability
LANGLEY-11068 B72-10749 06

ROTATING BODIES
Position indicating, rotating boom
LANGLEY-11202 B72-10066 07
Gravitational gradiometer measures mass changes
M-FS-20814 B72-10140 03

Noncontact torque measurement using stroboscopic techniques
MSC-12282 B72-10332 07

ROTATING DISKS
Angular velocity and acceleration meter
LEWIS-11466 B72-10183 06
A permeable rotating-wheel solvent extractor
LRL-10033 B72-10343 04

ROTATING ELECTRICAL MACHINES
Improved system for measuring speed of rotating machinery
ARC-10413 B72-10179 07

ROTATING MIRRORS
A bi-stable optical device
HQ-10701 B72-10655 03

ROTATING SHAFTS
Position indicating, rotating boom
LANGLEY-11202 B72-10066 07
A permeable rotating-wheel solvent extractor
LRL-10033 B72-10343 04

ROTATION
Hexapole magnet field analysis
GSFC-10995 B72-10113 03
Separation of gas mixtures by centrifugation
ARC-10449 B72-10270 03
Joining precipitation-hardened nickel-base alloys by friction welding
LEWIS-11514 B72-10288 08
Rotary shutter mechanism contains optical elements
GSFC-11244 B72-10387 03

ROTOR BLADES (TURBOMACHINERY)
Twistable mold for helicopter blades
ARC-10682 B72-10432 08
Effects of nonuniform swash-plate stiffness on coupled blade-control system dynamics and stability
LANGLEY-11068 B72-10749 06

ROTORS
Graph for locked rotor current
MSC-15703 B72-10075 06
Piezoelectric actuator uses sequentially-excited multiple elements: A concept
NPO-11527 B72-10096 01
Turbopump radial and axial rotor support system
M-FS-21495 B72-10264 07
Simple turbine balancing test apparatus
LEWIS-11658 B72-10377 07
A brushless dc spin motor for momentum exchange altitude control
M-FS-14952 B72-10448 02

RUBBER
Leaching of nitroso rubber material removes uncured polymer
MSC-17185 B72-10449 04

RUBBER COATINGS
Miniature intermittent contact switch
ARC-10450 B72-10271 01

RUN TIME (COMPUTERS)
Snap dynamics
M-FS-21531 B72-10265 09

RUNGE-KUTTA METHOD
Program to determine radiating, nonadiabatic, inviscid flow over a blunt body by the method of integral relations
LANGLEY-11048 B72-10067 09

RUPTURING
Simple method for forming thin-wall pressure vessels
ARC-10511 B72-10025 08

RUTHENIUM COMPOUNDS
Low temperature catalytic ignition of hydrogen and oxygen
ARC-10492 B72-10127 03

RUTILE
Study of in-situ degradation of thermal control surfaces
M-FS-20892 B72-10336 04

S

SAFETY
Standard environmental testing practices
NPO-11567 B72-10101 02
New meter probes provide protection from high current power sources at potentials up to 600 volts
LANGLEY-10804 B72-10455 01
Radiological control manual
M-FS-22092 B72-10460 03
Cylindrically shaped rope ladder
M-FS-16319 B72-10688 07

SAFETY DEVICES
Peak acceleration limiter
NPO-10556 B72-10007 01
High voltage protection network
ARC-10197 B72-10119 02
Radioisotope thermionic power supply for spacecraft
ARC-10438 B72-10212 03
Stem clutch for motor driven valve
LRL-10032 B72-10345 07
Combination pressure regulator and safety valve: A Concept
MSC-14088 B72-10446 06
Flexible shielding system for radiation protection
LRL-10028 B72-10500 03
A four-panel enclosure protects from explosion
M-FS-21847 B72-10613 06
Quick-donning backpack harness
LANGLEY-10102 B72-10641 05
An efficient prebreathing apparatus for humans during decompression
MSC-14151 B72-10690 05
Seat belt restraint system
ARC-10519 B72-10692 06
Waveguide switch protector
NPO-11592 B72-10705 01

SAFETY FACTORS
Technical management techniques for identification and control of industrial safety and pollution hazards
M-FS-21883 B72-10588 05

SAFETY MANAGEMENT
A four-panel enclosure protects from explosion
M-FS-21847 B72-10613 06

SALINITY
Water purification by reverse osmosis using heterocyclic polymer membranes
LANGLEY-10514 B72-10230 04

SALTS
Purification of contaminated water by filtration through porous glass
ARC-10655 B72-10412 04
High strength high modulus ceramic fiber
M-FS-21266 B72-10592 04

SAMPLERS
Microbiological surface sampling cart
LANGLEY-11069 B72-10395 05

SAMPLES

Third order digital-to-analog converter
MSC-12458 B72-10030 02

SAMPLING

Microbiological surface sampling cart
LANGLEY-11069 B72-10395 05
Improved sampling of compressed
gases for condensable hydrocarbon
content
KSC-10304 B72-10540 06

SANDWICH STRUCTURES

Nondestructive testing for braze voids
in thin panels by use of special coatings
LANGLEY-10486 B72-10374 08

Regenerable metallic oxide systems for
removal of carbon dioxide: A concept
ARC-10570 B72-10420 04

Thin-film ultraviolet detector and
spectrometer
NPO-11432 B72-10701 03

SAPPHIRE

Increasing the response of PIN pho-
todiodes to the ultraviolet
ARC-10274 B72-10053 03
Gate protective device for SOS array
HQ-10745 B72-10755 01

SATELLITE ATTITUDE CONTROL

Wide angle solar sensor
NPO-11341 B72-10080 01
Gas leak-detection system
NPO-11405 B72-10087 03

SATELLITE ORIENTATION

Wide angle solar sensor
NPO-11341 B72-10080 01

SATURN 5 LAUNCH VEHICLES

Program to determine space vehicle
response to wind turbulence
M-FS-21614 B72-10410 09

SAWS

Cutting thin sections of bone
ARC-10555 B72-10303 05
A tool for cutting ultra thin slits in
metals
KSC-10770 B72-10433 07

SCALING

Wind tunnel buffet load measuring
technique
ARC-10495 B72-10022 06

SCANDIUM OXIDES

Fabrication of large ceramic electrolyte
disks
ARC-10320 B72-10202 03

SCANNERS

Optical device for producing color line
scan display from monochrome oscil-
loscope traces
LANGLEY-10896 B72-10375 03
Improved optical filters for automated
visual inspection
HQ-10720 B72-10521 03
Film handling system for laser
scanner/recorder
MSC-14121 B72-10539 07

SCANNING

Scanning technique for tracking small
eye-movements
ARC-10488 B72-10220 05

SCATTERING

A Compton scatter attenuation gamma
ray spectrometer
M-FS-21441 B72-10487 03

SCHEDULING

System/360 Computer Assisted Net-
work Scheduling (CANS) System
GSFC-10909 B72-10599 09

SCORING

Lubricant selection for gear designers
LEWIS-11483 B72-10136 04

SCREWS

Electrical grounding bracket
ARC-10041 B72-10045 01

SCRUBBERS

Improved sampling of compressed
gases for condensable hydrocarbon
content
KSC-10304 B72-10540 06

SEALERS

Zero-leakage valves
ARC-10506 B72-10024 06
Pressure-probe assembly for wind
tunnels
ARC-10569 B72-10248 03
Development of a polyimide for use
as a temperature and solvent resistant
sealant
M-FS-21325 B72-10262 04
A new vibration dampening adhesive
MSC-17668 B72-10284 04
Synthesis of temperature and solvent-
resistant polymers
M-FS-20848 B72-10342 04
Thermally resistant polymers for fuel
tank sealants
M-FS-21232 B72-10358 04

SEALING

Glass technology involved in the manu-
facture of magnetometer components
GSFC-11283 B72-10132 03

SEALS (STOPPERS)

Hermetic isolation valves
ARC-10505 B72-10013 06
Micro regulating ball valve
ARC-10295 B72-10121 06
Optical shutter for use in shock tubes
ARC-10516 B72-10128 03
High-temperature ceramic-to-ceramic
seals
ARC-10319 B72-10199 04
Laboratory leak tester provides high
sensitivity
AEC-10042 B72-10240 03
Turbopump radial and axial rotor sup-
port system
M-FS-21495 B72-10264 07
Inorganic glass ceramic slip rings
M-FS-20711 B72-10313 04
High-volume pressure relief valve
KSC-10707 B72-10536 07

SEAT BELTS

Seat belt restraint system
ARC-10519 B72-10692 06

SEATS

Micro regulating ball valve
ARC-10295 B72-10121 06

SEDIMENTS

Phosphorus in land-water systems
AEC-10049 B72-10429 05

SEEBECK EFFECT

Compensation of voltage drops in
solid-state switches used with thermoelec-
tric generators
NPO-11388 B72-10138 01
Magnetic-doped alloys with very large
Seebeck coefficients
M-FS-21410 B72-10318 04

SEGMENTS

Compensating subreflector for two-
reflector antennas: A concept
NPO-11503 B72-10093 06

SELENIDES

Magnetometer uses bismuth-selenide
LEWIS-11632 B72-10629 03

SELF ERECTING DEVICES

Self-deploying boom
GSFC-10566 B72-10574 07

SELF LUBRICATION

Potentiometer, constant tension and
lubrication device
KSC-10723 B72-10541 02

SELF SEALING

Fill and vent quick disconnect
M-FS-21822 B72-10645 07

SEMICONDUCTING FILMS

Gate protective device for insulated gate
field-effect transistors
M-FS-21626 B72-10149 01
Annular objective apertures improve
resolution of electron microscopes
ARC-10448 B72-10171 03
Proposed semiconductor film
improvement
HQ-10685 B72-10438 04

SEMICONDUCTOR DEVICES

Oxygen pressure control for electrolysis
cells
ARC-10250 B72-10074 02
Compensation of voltage drops in
solid-state switches used with thermoelec-
tric generators
NPO-11388 B72-10138 01
Simple dynamic electromagnetic radia-
tion detector
LEWIS-11159 B72-10227 03
Proposed semiconductor film
improvement
HQ-10685 B72-10438 04
A Compton scatter attenuation gamma
ray spectrometer
M-FS-21441 B72-10487 03
An approach to real-time process
control of semiconductor wire-bonding
M-FS-21558 B72-10644 08
High temperature gallium phosphide
rectifiers
LEWIS-11804 B72-10673 01
Insulated-gate field-effect transistor
strain sensor
LANGLEY-11012 B72-10731 01
Wideband wattmeter for instant mea-
surement of real power
LEWIS-11698 B72-10737 01

SEMICONDUCTORS (MATERIALS)

Gate protective device for insulated gate
field-effect transistors
M-FS-21626 B72-10149 01
Study of in-situ degradation of thermal
control surfaces
M-FS-20892 B72-10336 04
Overlap diffusion for increasing photo-
transistor dynamic range
M-FS-20407 B72-10347 01
Redundancy approaches in bubble
domain memories
M-FS-21915 B72-10643 01

SENSITIVITY

Improved laboratory gradiometer can
be a field survey instrument
MSC-13980 B72-10001 03
Remote sensing X-ray spectrometer
MSC-13978 B72-10016 03
Determination of impact sensitivity of
materials at high pressures
MSC-13700 B72-10216 07
Simple dynamic electromagnetic radia-
tion detector
LEWIS-11159 B72-10227 03
Improved intensifying screen reduces
X-ray exposure
AEC-10090 B72-10232 03

- Laboratory leak tester provides high sensitivity
AEC-10042 B72-10240 03
Helium leak measurements using CO₂ as a carrier
M-FS-21742 B72-10354 03
Compensator design for low-sensitivity linear time-invariant systems (COMPDES)
M-FS-21652 B72-10486 09
An absorption spectrum amplifier for determining gas composition
HQ-10752 B72-10524 03
- SENSITIZING**
Erasable holographic medium using cis-trans isomerization
M-FS-22062 B72-10720 03
- SENSORIMOTOR PERFORMANCE**
New reaction tester accurate within 56 microseconds
MSC-13604 B72-10031 05
- SENSORS**
Position indicating, rotating boom
LANGLEY-11202 B72-10066 07
A reliable liquid helium detector
LEWIS-11487 B72-10145 01
Vibrating ribbon bolometer: A concept
XAC-10768 B72-10170 03
- SEPARATED FLOW**
Cavitation data for hydraulic equipment
LEWIS-11642 B72-10384 07
- SEPARATION**
A method of isolating organic compounds present in water
AEC-10010 B72-10044 04
- SEPARATORS**
Mass separator for low velocity ions
ARC-10375 B72-10123 03
Separation of gas mixtures by centrifugation
ARC-10449 B72-10270 03
Hydrophobic liquid/gas separator for heat pipes
ARC-10656 B72-10549 03
- SEQUENTIAL CONTROL**
Piezoelectric actuator uses sequentially-excited multiple elements: A concept
NPO-11527 B72-10096 01
Flexible desk top computers using Large Scale Integration (L.S.I.) chips
M-FS-21277 B72-10112 01
- SERVICE LIFE**
High-temperature, long-life thyratron
LEWIS-11327 B72-10134 01
Improved operation of rechargeable oxygen electrodes
LEWIS-11619 B72-10479 01
Advanced alloy design technique: High temperature cobalt base superalloy
LEWIS-10436 B72-10514 04
Micro-scale crease-and-fold apparatus
NPO-12029 B72-10552 06
- SERVOCONTROL**
Control of acceleration in sine/random vibration tests
NPO-11482 B72-10091 02
Particle detection by a light-scattering technique
ARC-10384 B72-10160 03
Vortex servovalve for fluidic or electrical input
ARC-10155 B72-10173 07
- SERVO MECHANISMS**
Wind tunnel buffet load measuring technique
ARC-10495 B72-10022 06
- SERVOMOTORS**
Vibrating ribbon bolometer: A concept
XAC-10768 B72-10170 03
Film handling system for laser scanner/recorder
MSC-14121 B72-10539 07
- SET THEORY**
Cubic spline functions for curve fitting
LRL-10034 B72-10311 09
A linear programming manual
HQ-10743 B72-10671 09
- SEWAGE**
Metered oxygen supply aids treatment of domestic sewage
ARC-10024 B72-10557 05
- SHAFTS (MACHINE ELEMENTS)**
High speed, self-acting, face-contact shaft seal has low leakage and very low wear
LEWIS-11598 B72-10114 07
Micro regulating ball valve
ARC-10295 B72-10121 06
Angular velocity and acceleration meter
LEWIS-11466 B72-10183 06
Low cost anti-galling bushings
LEWIS-11724 B72-10359 08
High-speed, self-acting shaft seal (circumferential type)
LEWIS-11274 B72-10447 07
Adjustable locking device
M-FS-21650 B72-10459 07
Computer program for calculating the temperature field of face seals
LEWIS-11110 B72-10483 09
Sprag solenoid brake
M-FS-21846 B72-10669 06
Improved lip seal for rotating shafts
LEWIS-11602 B72-10672 07
- SHAKERS**
Control of acceleration in sine/random vibration tests
NPO-11482 B72-10091 02
- SHEAR PROPERTIES**
Rising-plate rheometer
ARC-10524 B72-10026 03
- SHEAR STRENGTH**
Small-scale explosive welding of aluminum
LANGLEY-10941 B72-10002 04
A new vibration dampening adhesive
MSC-17668 B72-10284 04
Graphite and boron-reinforced composite materials data summary
M-FS-21691 B72-10294 04
Adhesive for aluminum withstands cryogenic temperatures
M-FS-16848 B72-10346 04
- SHEAR STRESS**
Bonding titanium to Rene 41 alloy
ARC-10311 B72-10041 08
Cryogenic gel flow viscometer
ARC-10523 B72-10180 03
Angular velocity and acceleration meter
LEWIS-11466 B72-10183 06
- SHEATHS**
Explosive cord
M-FS-21928 B72-10293 08
- SHELLS (STRUCTURAL FORMS)**
Isogrid structure
M-FS-21567 B72-10323 06
Geometrically nonlinear static and dynamic analysis of arbitrarily loaded shells of revolution
LANGLEY-11109 B72-10504 09
- SHIELDING**
Small-scale explosive welding of aluminum
LANGLEY-10941 B72-10002 04
Electrical grounding bracket
ARC-10041 B72-10045 01
Baffle to confine glow discharge in ion pump
M-FS-21575 B72-10324 03
A four-panel enclosure protects from explosion
M-FS-21847 B72-10613 06
Boron-10 loaded inorganic shielding material
M-FS-22280 B72-10740 04
- SHIFT REGISTERS**
Techniques for improving reliability of computers
M-FS-21326 B72-10109 02
Improved feedback shift register
NPO-10351 B72-10226 01
A manually set magnetic wire counter
AEC-10039 B72-10369 01
An improved learning decoder
MSC-14070 B72-10573 02
A simplified, compact static shift register
HQ-10723 B72-10591 02
Redundancy approaches in bubble domain memories
M-FS-21915 B72-10643 01
- SHOCK HEATING**
Controlled flow assembly
M-FS-21716 B72-10404 07
- SHOCK LAYERS**
Program to determine radiating, nonadiabatic, inviscid flow over a blunt body by the method of integral relations
LANGLEY-11048 B72-10067 09
- SHOCK RESISTANCE**
Isotropic pyrolytic carbons
ARC-10532 B72-10029 04
Miniature intermittent contact switch
ARC-10450 B72-10271 01
- SHOCK TUBES**
Optical shutter for use in shock tubes
ARC-10516 B72-10128 03
Improved high-performance shock tube
NPO-11885 B72-10242 03
Amplifier for signal from thin film transducer
LEWIS-11494 B72-10463 01
- SHOCK WAVE ATTENUATION**
Improved high-performance shock tube
NPO-11885 B72-10242 03
- SHOCK WAVE GENERATORS**
Wind tunnel buffet load measuring technique
ARC-10495 B72-10022 06
- SHOCK WAVES**
Optical shutter for use in shock tubes
ARC-10516 B72-10128 03
Explosive cord
M-FS-21928 B72-10293 08
Chemical kinetics computer program for static and flow reactions
LEWIS-11467 B72-10580 04
Study of high altitude plume impingement
M-FS-21414 B72-10601 09
- SHORT CIRCUITS**
Sheet plastic filters for solar cells
NPO-11464 B72-10090 04
New meter probes provide protection from high current power sources at potentials up to 600 volts
LANGLEY-10804 B72-10455 01

SHORT TAKEOFF AIRCRAFT

Ejector nozzle with massive blowing
ARC-10621 B72-10693 06

SHOULDERS

Quick-donning backpack harness
LANGLEY-10102 B72-10641 05

SHRINKAGE

High strength, medium density molded foam
AEC-10053 B72-10235 04

Fabrication of uniaxial filament-reinforced epoxy tubes for structural application
LANGLEY-10203 B72-10340 04

Low cost anti-galling bushings
LEWIS-11724 B72-10359 08

SHROUDS

Reduction of noise in gyro outputs
NPO-11603 B72-10743 06

SHUTTERS

Optical shutter for use in shock tubes
ARC-10516 B72-10128 03

Rotary shutter mechanism contains optical elements
GSFC-11244 B72-10387 03

SIDEBANDS

Accurate measurement of telemetry performance
NPO-11457 B72-10089 02

SIDELOBES

Redirecting electromagnetic beams through wide angles
ARC-10602 B72-10307 03

SIGNAL ANALYSIS

A study of the power spectral density of an FM signal
M-FS-21070 B72-10361 02

SIGNAL ANALYZERS

A range expanding signal conditioner
M-FS-21720 B72-10639 02

SIGNAL DETECTION

Technique minimizes the effects of dropouts on telemetry records
NPO-11421 B72-10088 02

Optical enhancement of sensitivity in laser Doppler velocity systems
ARC-10653 B72-10310 03

A range expanding signal conditioner
M-FS-21720 B72-10639 02

SIGNAL ENCODING

Dual redundant core memory systems
MSC-13993 B72-10261 09

Speech therapy and voice recognition instrument
HQ-10628 B72-10652 05

SIGNAL FADING

An improved learning decoder
MSC-14070 B72-10573 02

SIGNAL GENERATORS

Differential input preamplifier
ARC-10489 B72-10165 01

Nondestructive testing of microtab welds
ARC-10176 B72-10296 02

SIGNAL PROCESSING

Technique minimizes the effects of dropouts on telemetry records
NPO-11421 B72-10088 02

Dual redundant core memory systems
MSC-13993 B72-10261 09

A simple dead-reckoning navigational system
M-FS-21165 B72-10409 02

Very high speed direct-readout, control and recording system
M-FS-20658 B72-10442 02

Radio direction finder
NPO-11573 B72-10508 02

Remote measurement of the water content of snowpacks
ARC-10651 B72-10567 03

A range expanding signal conditioner
M-FS-21720 B72-10639 02

Low distortion automatic phase control circuit
M-FS-21671 B72-10682 02

SIGNAL RECEPTION

Lightning flash detection system
ARC-10562 B72-10272 02

Very high speed direct-readout, control and recording system
M-FS-20658 B72-10442 02

Remote measurement of the water content of snowpacks
ARC-10651 B72-10567 03

SIGNAL STABILIZATION

Broadband RF-distribution amplifier
NPO-11401 B72-10245 01

A study of the power spectral density of an FM signal
M-FS-21070 B72-10361 02

SIGNAL TO NOISE RATIOS

Pulse excitation of bolometer bridges
ARC-10292 B72-10054 01

Accurate measurement of telemetry performance
NPO-11457 B72-10089 02

Signal to noise measurement circuit
GSFC-11239 B72-10102 01

Manganese bismuth thin film for large capacity digital memories
M-FS-21246 B72-10107 03

An improved learning decoder
MSC-14070 B72-10573 02

A range expanding signal conditioner
M-FS-21720 B72-10639 02

Reduction of noise in gyro outputs
NPO-11603 B72-10743 06

SIGNAL TRANSMISSION

Heart catheter cable and connector
ARC-10406 B72-10200 05

Lightning flash detection system
ARC-10562 B72-10272 02

Blood pressure measurement and display system
MSC-13036 B72-10334 05

SIGNALS

Amplifier for signal from thin film transducer
LEWIS-11494 B72-10463 01

Universal dc signal conditioner
MSC-17526 B72-10510 02

SILANES

Nonflammable and abrasion resistant coating process for glass fibers
MSC-14024 B72-10445 08

SILICATES

Research on bearing lubricants for use in a high vacuum
M-FS-22119 B72-10469 04

A visual-display and storage device
GSFC-10901 B72-10647 02

SILICON

Oxygen-layer structure improves lithium-doped silicon solar cells
NPO-11403 B72-10085 03

Introduction of lithium into the front surface of solar cells
NPO-11404 B72-10086 02

Tornado detector and alarm
M-FS-20915 B72-10106 01

Long-term drift of thermocouples at 1600 K
LEWIS-11471 B72-10176 01

Simple dynamic electromagnetic radiation detector
LEWIS-11159 B72-10227 03

Devolatilization of polymer resins
GSFC-11358 B72-10280 04

Microminiature gas chromatographic column
ARC-10594 B72-10306 04

Failure in glass
AEC-10088 B72-10364 04

Efficient wire-grid duplexer-polarized for CO₂ lasers
GSFC-11403 B72-10440 03

High intensity solar cell radiometer
LEWIS-11549 B72-10480 01

Humidity resistant solar cell contacts
HQ-10674 B72-10517 04

SILICON CARBIDES

Control of acceleration in sine/random vibration tests
NPO-11482 B72-10091 02

SILICON CONTROLLED RECTIFIERS

Time-lapse camera for microscopy
ARC-10423 B72-10125 05

Automatic method of measuring silicon-controlled-rectifier holding current
LEWIS-11898 B72-10752 02

SILICON DIOXIDE

Improved elastomer for use with oxygen difluoride
ARC-10528 B72-10027 04

Optical bonding agents for severe environments
ARC-10459 B72-10063 04

Cell for electrolysis of water vapor
ARC-10521 B72-10166 03

Insolubilized enzymes for food synthesis
ARC-10568 B72-10247 04

A transmitting and reflecting diffuser for ultraviolet light
LANGLEY-10385 B72-10611 03

Development of chip passivated monolithic complementary MISFET circuits with beam leads
M-FS-22264 B72-10696 01

SILICON OXIDES

Gate protective device for SOS array
HQ-10745 B72-10755 01

SILICON RADIATION DETECTORS

Gas leak-detection system
NPO-11405 B72-10087 03

SILICON TRANSISTORS

Coaxial inverted geometry epitaxial transistor
ARC-10330 B72-10056 01

SILICONE RUBBER

Protective encapsulation of implantable biotelemetry units
ARC-10514 B72-10301 05

Ultrasonic bone densitometer
M-FS-20994 B72-10450 05

Improved biomedical electrode
MSC-13648 B72-10642 05

Implantable drug therapy device: A concept
NPO-11934 B72-10708 05

SILICONES

Synthesis of temperature and solvent-resistant polymers
M-FS-20848 B72-10342 04

Bondability of RTV silicon rubber
AEC-10026 B72-10367 04

SILICONIZING

Nonflammable and abrasion resistant coating process for glass fibers
MSC-14024 B72-10445 08

SILOXANES

Improved method for reclaiming vacuum diffusion pump oil
LEWIS-11647 B72-10511 04
Ultraviolet and thermally stable polymer compositions
ARC-10592 B72-10709 04

SILVER

Soldering iron temperature indicator
NPO-11545 B72-10098 02
Carbon dioxide concentrator
ARC-10245 B72-10194 05
Pressure-probe assembly for wind tunnels
ARC-10569 B72-10248 03
Explosive cord
M-FS-21928 B72-10293 08
Laser beam deflection control: A concept
MSC-13814 B72-10411 02
Silver stain for electron microscopy
ARC-10661 B72-10415 05
Improved photoetching fabrication method
LEWIS-11268 B72-10745 08

SILVER CHLORIDES

Silver-chlorine fuel cell: A concept
ARC-10491 B72-10221 03
Fabrication techniques for organic electrolyte battery
AEC-10019 B72-10428 08

SILVER COMPOUNDS

Aluminum foil interconnects for solar cell panels
ARC-10374 B72-10058 08

SIMULATION

Soldering iron temperature indicator
NPO-11545 B72-10098 02
Prolate spheroidal slosh model for fluid motion
MSC-13864 B72-10182 09
Speed enhancement of complementary MOS devices
ARC-10387 B72-10184 01
Drive mechanism for production of simulated human breath
HQ-10777 B72-10659 05
Temperature and humidity control of simulated human breath
HQ-10778 B72-10660 05
Simulated breath waveform control
HQ-10779 B72-10661 05

SIMULATORS

Urban air pollution dispersion model
AEC-10004 B72-10003 03
Weight simulator
ARC-10100 B72-10046 05
Heart simulator
M-FS-21609 B72-10131 02
A compact spectroradiometer for solar simulator measurements
HQ-10683 B72-10327 03
Breathing-metabolic simulator
HQ-10766 B72-10657 05
Metabolic simulation chamber
HQ-10776 B72-10658 05

SINE SERIES

Three-point compound sine plate offers cost and weight savings
MSC-15818 B72-10118 07

SINE WAVES

Implanted telemeter for electrocardiogram and body temperature
XAC-08505 B72-10035 05
Control of acceleration in sine/random vibration tests
NPO-11482 B72-10091 02
Dynamic valve to supply constant total thrust to two orifice jets
ARC-10239 B72-10120 07
Nondestructive testing of microtab welds
ARC-10176 B72-10296 02

SINGLE CRYSTALS

Advanced infrared photomultiplier
M-FS-20941 B72-10152 03
Floating zone process for drawing small diameter fibers of refractory materials
LEWIS-11380 B72-10491 04
Polishing is made cheaper by disposable diamond-impregnated abrasive cloth
MSC-14247 B72-10616 08

SINTERING

Fabrication of large ceramic electrolyte disks
ARC-10320 B72-10202 03
Nonflammable and abrasion resistant coating process for glass fibers
MSC-14024 B72-10445 08
Humidity resistant solar cell contacts
HQ-10674 B72-10517 04
Sintered diamond compacts using metallic cobalt binders
HQ-10706 B72-10519 04

SIZING (SHAPING)

Low cost anti-galling bushings
LEWIS-11724 B72-10359 08

SKIN (ANATOMY)

An improved aesthesiometer
MSC-13609 B72-10032 05
Improved biomedical electrode
MSC-13648 B72-10642 05
Improved electrodes for skin contacts
M-FS-21926 B72-10698 05

SKIN TEMPERATURE (BIOLOGY)

Improved temperature control of liquid cooling garments
MSC-13917 B72-10281 05

SLEEVES

An improved aesthesiometer
MSC-13609 B72-10032 05
Combination throttle and shutoff valve
M-FS-21513 B72-10287 07
Fabrication of uniaxial filament-reinforced epoxy tubes for structural application
LANGLEY-10203 B72-10340 04
Perload indicating turnbuckle
M-FS-21488 B72-10355 07
Low cost anti-galling bushings
LEWIS-11724 B72-10359 08
Rotary shutter mechanism contains optical elements
GSFC-11244 B72-10387 03

SLIDING FRICTION

Longitudinal friction forces in piping design
M-FS-13754 B72-10103 01

SLITS

Optical shutter for use in shock tubes
ARC-10516 B72-10128 03
A tool for cutting ultra thin slits in metals
KSC-10770 B72-10433 07
Improved optical filters for automated visual inspection
HQ-10720 B72-10521 03

SLOPES

Triangular wheel locomotion mechanism
NPO-11366 B72-10714 06

SLURRIES

Electrodes for sealed secondary batteries
ARC-10238 B72-10050 02
Silver-chlorine fuel cell: A concept
ARC-10491 B72-10221 03

SMOKE ABATEMENT

Urban air pollution dispersion model
AEC-10004 B72-10003 03

SNELLS LAW

An improved apochromatic wedge utilizing optical molecular contact bonding
GSFC-11082 B72-10388 03

SNOW COVER

Remote measurement of the water content of snowpacks
ARC-10651 B72-10567 03

SOAKING

Fabrication of large ceramic electrolyte disks
ARC-10320 B72-10202 03

SODALITE

A visual-display and storage device
GSFC-10901 B72-10647 02

SODIUM CHLORIDES

Al/Cl₂ molten salt battery
HQ-10696 B72-10527 01
Reverse-osmosis membranes by plasma polymerization
ARC-10696 B72-10710 04

SODIUM COMPOUNDS

Covalent bonding of antibodies of polystyrene latex beads: A concept
MSC-13906 B72-10006 05
Catalyst for sodium chlorate decomposition
ARC-10584 B72-10305 04
Radiation-induced nickel deposits
LEWIS-10965 B72-10456 04

SODIUM SALICYLATES

Improved transmittance measurement with a magnesium oxide coated integrating sphere
LEWIS-11840 B72-10717 04

SODIUM SILICATES

Inorganic glass ceramic slip rings
M-FS-20711 B72-10313 04

SOFT LANDING

Optimized braking of landing vehicles with atmospheric drag
NPO-11402 B72-10084 06

SOILS

Phosphorus in land-water systems
AEC-10049 B72-10429 05

SOLAR ACTIVITY

Sunspot analysis and prediction
M-FS-21724 B72-10317 03

SOLAR ARRAYS

Performance of silicon solar cell assemblies
NPO-11847 B72-10186 01

SOLAR CELLS

Aluminum foil interconnects for solar cell panels
ARC-10374 B72-10058 08
Wide angle solar sensor
NPO-11341 B72-10080 01
Oxygen-layer structure improves lithium-doped silicon solar cells
NPO-11403 B72-10085 03

- Introduction of lithium into the front surface of solar cells
NPO-11404 B72-10086 02
- Sheet plastic filters for solar cells
NPO-11464 B72-10090 04
- High solar intensity radiometer
LEWIS-11533 B72-10130 03
- Flexible, low-cost silicon solar cell arrays
LEWIS-11069 B72-10177 02
- Performance of silicon solar cell assemblies
NPO-11847 B72-10186 01
- Solar sensor with autocollimator
ARC-10148 B72-10192 03
- High intensity solar cell radiometer
LEWIS-11549 B72-10480 01
- Humidity resistant solar cell contacts
HQ-10674 B72-10517 04
- Peak-power-point monitor for solar panel
NPO-11708 B72-10694 02
- SOLAR COLLECTORS**
Wide angle solar sensor
NPO-11341 B72-10080 01
- Solar powered absorption cycle heat pump using phase change materials for energy storage
M-FS-21927 B72-10615 06
- SOLAR CONSTANT**
High solar intensity radiometer
LEWIS-11533 B72-10130 03
- SOLAR ENERGY**
Solar powered absorption cycle heat pump using phase change materials for energy storage
M-FS-21927 B72-10615 06
- SOLAR GENERATORS**
Peak-power-point monitor for solar panel
NPO-11708 B72-10694 02
- SOLAR HEATING**
Phosphonium chloride for thermal storage
ARC-10572 B72-10422 04
- Solar powered absorption cycle heat pump using phase change materials for energy storage
M-FS-21927 B72-10615 06
- SOLAR PHYSICS**
Solar experiment alignment system
ARC-10471 B72-10020 03
- SOLAR RADIATION**
Increasing the response of PIN photodiodes to the ultraviolet
ARC-10274 B72-10053 03
- Program for determination of radiation interchange factors
MSC-17563 B72-10071 09
- Sheet plastic filters for solar cells
NPO-11464 B72-10090 04
- A compact spectroradiometer for solar simulator measurements
HQ-10683 B72-10327 03
- Investigation of environmental effects on coatings for thermal control
M-FS-21932 B72-10596 04
- A study of radiation environment in space and its biological effects
HQ-10798 B72-10662 03
- Ultraviolet and thermally stable polymer compositions
ARC-10592 B72-10709 04
- SOLAR SENSORS**
Solar experiment alignment system
ARC-10471 B72-10020 03
- Solar sensor with autocollimator
ARC-10148 B72-10192 03
- SOLAR SYSTEM**
Gravitational gradiometer measures mass changes
M-FS-20814 B72-10140 03
- SOLAR WIND**
Mass separator for low velocity ions
ARC-10375 B72-10123 03
- SOLAR X-RAYS**
Remote sensing X-ray spectrometer
MSC-13978 B72-10016 03
- SOLDERED JOINTS**
Improved electrical spot terminals
NPO-10034 B72-10492 01
- A simple, efficient resistance soldering apparatus
GSFC-10913 B72-10649 08
- SOLDERING**
Electrical grounding bracket
ARC-10041 B72-10045 01
- Soldering iron temperature indicator
NPO-11545 B72-10098 02
- Humidity resistant solar cell contacts
HQ-10674 B72-10517 04
- A simple, efficient resistance soldering apparatus
GSFC-10913 B72-10649 08
- SOLDERS**
Pressure-probe assembly for wind tunnels
ARC-10569 B72-10248 03
- SOLENOID VALVES**
Solenoid-operated swing-check valve
XAC-10048 B72-10037 06
- Gas leak-detection system
NPO-11405 B72-10087 03
- Driver circuit for inductive loads
ARC-10073 B72-10268 01
- A closed loop cryogenic environment pressure regulating system
MSC-13880 B72-10390 02
- SOLENOIDS**
Beryllium thin films for resistor applications
ARC-10485 B72-10021 01
- A dual-beam actinic light source for photosynthesis research
ARC-10351 B72-10205 05
- Miniature high pressure regulator
ARC-10428 B72-10211 07
- Ferrofluidic solenoid with axial and radial displacement
NPO-11738 B72-10241 06
- Remote control flare stack igniter for combustible gases
M-FS-21675 B72-10352 07
- Electromagnetic rheometer
ARC-10525 B72-10416 04
- Magnets with stabilized conductors
HQ-10727 B72-10465 03
- Sprag solenoid brake
M-FS-21846 B72-10669 06
- SOLID LUBRICANTS**
Polyimide bonded graphite fluoride: A new long life solid lubricant coating
LEWIS-11864 B72-10628 04
- SOLID PROPELLANT ROCKET ENGINES**
Design criteria monograph for pressurized metal cases
LEWIS-11835 B72-10633 04
- Design criteria monograph on solid rocket motor igniters
LEWIS-11826 B72-10715 06
- SOLID ROCKET PROPELLANTS**
Suppressants for lowering propellant binder burning rate
ARC-10563 B72-10560 04
- SOLID SOLUTIONS**
Advances in induction-heated plasma torch technology
LEWIS-11354 B72-10151 03
- SOLID STATE**
Speed enhancement of complementary MOS devices
ARC-10387 B72-10184 01
- Joining precipitation-hardened nickel-base alloys by friction welding
LEWIS-11514 B72-10288 08
- SOLID STATE DEVICES**
Voltage-tunable parallel-T filter for remote operation
NPO-11165 B72-10077 01
- Piezoelectric actuator uses sequentially-excited multiple elements: A concept
NPO-11527 B72-10096 01
- Compensation of voltage drops in solid-state switches used with thermoelectric generators
NPO-11388 B72-10138 01
- Blood pressure measurement and display system
MSC-10336 B72-10334 05
- Overlap diffusion for increasing phototransistor dynamic range
M-FS-20407 B72-10347 01
- Aluminum nitride insulating films for MOSFET devices
NPO-11859 B72-10425 04
- Wide-range nuclear magnetic resonance detector
LEWIS-11513 B72-10478 03
- Electronic integrator for gyro rate output voltages
NPO-11499 B72-10555 01
- Redundancy approaches in bubble domain memories
M-FS-21915 B72-10643 01
- Two-speed deflection system for electron micropattern generator
M-FS-22117 B72-10668 02
- High field CdS detector for infrared radiation
LANGLEY-11027 B72-10725 04
- SOLIDIFICATION**
Composite casting demonstration
M-FS-21668 B72-10266 04
- SOLIDIFIED GASES**
Dry ice plug for hydraulic and pneumatic pipe flushing
MSC-12548 B72-10496 06
- SOLUBILITY**
Initiation of polymerization by tetrabutylammonium p-lithiophenoxide
ARC-10553 B72-10223 04
- Insolubilized enzymes for food synthesis
ARC-10568 B72-10247 04
- SOLUTIONS**
Free-radical solution-polymerization of trifluoronitrosomethane with tetrafluoroethylene
ARC-10567 B72-10419 04
- SOLVENT EXTRACTION**
A permeable rotating-wheel solvent extractor
LRL-10033 B72-10343 04
- SOLVENTS**
A method of isolating organic compounds present in water
AEC-10010 B72-10044 04

- High strength, medium density molded foam
AEC-10053 872-10235 04
Development of a polyimide for use as a temperature and solvent resistant sealant
M-FS-21325 872-10262 04
Free-radical solution-polymerization of trifluoronitrosomethane with tetrafluoroethylene
ARC-10567 872-10419 04
- SORBENTS**
Trace contaminant adsorption and sorbent regeneration in closed ecological systems
LANGLEY-10681 872-10328 04
- SORPTION**
Trace contaminant adsorption and sorbent regeneration in closed ecological systems
LANGLEY-10681 872-10328 04
- SOUND AMPLIFICATION**
Improved audio reproduction system
ARC-10404 872-10059 01
- SOUND INTENSITY**
Evaluation of jet engine noise
M-FS-21416 872-10263 03
Loudness (annoyance), reduction procedure for steady sounds
LEWIS-11761 872-10579 05
- SOUND WAVES**
Piezoelectric transducer mosaic
ARC-10509 872-10014 01
Analytical failure determination of flow-induced fatigue in bellows
M-FS-18178 872-10488 06
Analysis and computer programs to calculate acoustic wave properties of baffled chambers
LEWIS-11529 872-10577 09
- SOUNDING ROCKETS**
Adaptive position control loop
ARC-10255 872-10052 02
- SPACE CHARGE**
Metastable atom probe for measuring electron beam density profiles
M-FS-21593 872-10485 03
Cathode for use with low density gases
HQ-10687 872-10530 01
- SPACE COMMUNICATION**
High efficiency collector for microwave tubes
LEWIS-11192 872-10259 03
Mathematical analysis for the performance assessment of space communication parameters, IBM-360 version
GSFC-11523 872-10675 09
Technique for refocusing, decompressing, and conditioning spent electron beams
LEWIS-11617 872-10727 03
- SPACE EXPLORATION**
Planetary rock corer and drill concepts
NPO-11416 872-10398 07
- SPACE FLIGHT**
Devolatilization of polymer resins
GSFC-11358 872-10280 04
- SPACE MISSIONS**
Reliability analysis based on operational success criteria
ARC-10490 872-10214 09
High intensity solar cell radiometer
LEWIS-11549 872-10480 01
System/360 Computer Assisted Network Scheduling (CANS) System
GSFC-10909 872-10599 09
- SPACE PERCEPTION**
Improved measurement of depth perception
M-FS-14133 872-10730 05
- SPACE PROBES**
Wide-range dynamic pressure sensor
ARC-10263 872-10196 03
- SPACE SHUTTLES**
Boron aluminum composite structures
M-FS-21571 872-10386 04
Response of a panel structure to reverberant acoustic excitation
M-FS-21774 872-10603 06
Propulsion sizing program
MSC-14016 872-10605 09
- SPACE SIMULATORS**
Cine recording ophthalmoscope
ARC-10399 872-10189 05
- SPACE SUITS**
Space-suit carbon dioxide absorption system: A concept
ARC-10546 872-10168 05
Convuluted fabric for full-pressure gloves
ARC-10529 872-10215 04
Space suit may have orthotic applications
ARC-10275 872-10297 05
- SPACECRAFT**
Solid amine compounds as sorbents for carbon dioxide: A concept
ARC-10571 872-10421 04
Investigation of environmental effects on coatings for thermal control
M-FS-21932 872-10596 04
- SPACECRAFT ANTENNAS**
Low-friction ball-and-socket
NPO-11348 872-10081 08
- SPACECRAFT CABIN ATMOSPHERES**
Automation of Bosch reaction for CO₂ reduction
M-FS-21674 872-10666 04
- SPACECRAFT CABINS**
Cell for electrolysis of water vapor
ARC-10521 872-10166 03
- SPACECRAFT COMMUNICATION**
Deep space network
NPO-11562 872-10043 01
Crystal-controlled multivibrator
NPO-11627 872-10155 01
- SPACECRAFT COMPONENTS**
Tandem steerable running gear
M-FS-22012 872-10499 07
PTFE films with improved flexibility
NPO-12028 872-10551 04
Electronic integrator for gyro rate output voltages
NPO-11499 872-10555 01
Fill and vent quick disconnect
M-FS-21822 872-10645 07
- SPACECRAFT CONSTRUCTION MATERIALS**
Graphite and boron-reinforced composite materials data summary
M-FS-21691 872-10294 04
- SPACECRAFT CONTROL**
Gas leak-detection system
NPO-11405 872-10087 03
- SPACECRAFT ELECTRONIC EQUIPMENT**
Piezoelectric actuator uses sequentially-excited multiple elements: A concept
NPO-11527 872-10096 01
- SPACECRAFT INSTRUMENTS**
Thermal-powered reciprocating pump
NPO-11417 872-10723 06
- SPACECRAFT LANDING**
Energy absorbing system for mechanical impacts
NPO-10671 872-10712 06
- SPACECRAFT MANEUVERS**
Optimized braking of landing vehicles with atmospheric drag
NPO-11402 872-10084 06
- SPACECRAFT POWER SUPPLIES**
Closed-cycle power supply for fluidic control systems
ARC-10480 872-10163 06
Radioisotope thermionic power supply for spacecraft
ARC-10438 872-10212 03
Advanced high-temperature electromagnetic pump
LEWIS-11283 872-10537 07
Experimental study of flow distribution with circumferential manifolds
LEWIS-11649 872-10738 06
- SPACECRAFT PROPULSION**
Propellant-powered actuator for gas generators
ARC-10484 872-10008 03
Fluidic pressure regulators
ARC-10474 872-10162 06
Thermal control for storage of cryogenic propellants in a common-bulkhead tank: A concept
ARC-10558 872-10276 03
- SPACECRAFT RELIABILITY**
Reliability analysis based on operational success criteria
ARC-10490 872-10214 09
- SPACECRAFT SHIELDING**
Velocity accelerator for particles
NPO-11349 872-10082 03
- SPACECRAFT STRUCTURES**
Graphite and boron-reinforced composite materials data summary
M-FS-21691 872-10294 04
Study of high altitude plume impingement
M-FS-21414 872-10601 09
- SPACECRAFT TRACKING**
Deep space network
NPO-11562 872-10043 01
- SPACECRAFT TRAJECTORIES**
Interplanetary Trajectories, Encke Method (ITEM)
GSFC-11576 872-10604 09
- SPACERS**
Method of determining thermal conductivity in multi-layer insulation systems
M-FS-20213 872-10154 03
Cell for electrolysis of water vapor
ARC-10521 872-10166 03
Carbon dioxide concentrator
ARC-10245 872-10194 05
- SPALLING**
Isotropic pyrolytic carbons
ARC-10532 872-10029 04
- SPARK GAPS**
High voltage protection network
ARC-10197 872-10119 02
Spark ultrasonic transducer
M-FS-21233 872-10594 04
- SPARK IGNITION**
Remote control flare stack igniter for combustible gases
M-FS-21675 872-10352 07
- SPARK MACHINING**
Optical alignment of electrodes on electrical discharge machines
XAC-09489 872-10036 07

SUBJECT INDEX

SPARK PLUGS

Remote control flare stack igniter for combustible gases
M-FS-21675 B72-10352 07

SPATIAL FILTERING

Sensitive holographic detection of small aerodynamic perturbations
ARC-10422 B72-10209 03
Improved optical filters for automated visual inspection
HQ-10720 B72-10521 03

SPECIFIC HEAT

Computer program for natural gas flow through nozzles
LEWIS-11534 B72-10362 09
Heat transfer correlations for kerosene fuels and mixtures and physical properties for Jet A fuel
LEWIS-11652 B72-10742 04

SPECIFICATIONS

Specification guidelines for hybrid microcircuits
M-FS-22090 B72-10474 01

SPECTRAL BANDS

Direct analysis of hydrogen/deuterium mixtures: A concept
NPO-11322 B72-10244 03
A study of the power spectral density of an FM signal
M-FS-21070 B72-10361 02

SPECTRAL EMISSION

A compact spectroradiometer for solar simulator measurements
HQ-10683 B72-10327 03

SPECTRAL ENERGY DISTRIBUTION

Improved intensifying screen reduces X-ray exposure
AEC-10090 B72-10232 03

SPECTROMETERS

Remote sensing X-ray spectrometer
MSC-13978 B72-10016 03
Optical shutter for use in shock tubes
ARC-10516 B72-10128 03
Liquid-helium-cooled Michelson interferometer
ARC-10554 B72-10217 03
A Compton scatter attenuation gamma ray spectrometer
M-FS-21441 B72-10487 03
Boron-10 loaded inorganic shielding material
M-FS-22280 B72-10740 04

SPECTRORADIOMETERS

A compact spectroradiometer for solar simulator measurements
HQ-10683 B72-10327 03

SPECTROSCOPY

A dual-beam actinic light source for photosynthesis research
ARC-10351 B72-10205 05

SPECTRUM ANALYSIS

Lightweight, broad-band spectrum analyzer
ARC-10405 B72-10060 01
Differential input preamplifier
ARC-10489 B72-10165 01
Acoustic spectral analysis and testing techniques
NPO-11554 B72-10341 03
Spectral analysis of multiple time series
M-FS-18859 B72-10614 09
Three bit mass spectral search program
NPO-11960 B72-10747 09

SPECULAR REFLECTION

A new low-cost method for producing collimating mirrors
LEWIS-11553 B72-10513 08

SPHERES

Machine finishes balls to high degree of roundness
M-FS-21448 B72-10595 08
Energy absorbing system for mechanical impacts
NPO-10671 B72-10712 06
Improved transmittance measurement with a magnesium oxide coated integrating sphere
LEWIS-11840 B72-10717 04

SPHERICAL HARMONICS

Geometric field-line calculations
GSFC-11597 B72-10674 09

SPHERICAL TANKS

Simple method for forming thin-wall pressure vessels
ARC-10511 B72-10025 08

SPHYGMOGRAPHY

Blood pressure measurement and display system
MSC-13036 B72-10334 05

SPIKING

Pseudo-saturating power converter
NPO-11368 B72-10042 01

SPINDLES

Machine finishes balls to high degree of roundness
M-FS-21448 B72-10595 08

SPIROMETERS

Balanced-bellows spirometer
XAC-01547 B72-10279 05

SPLASHING

Effects of nonuniform swash-plate stiffness on coupled blade-control system dynamics and stability
LANGLEY-11068 B72-10749 06

SPLINE FUNCTIONS

Cubic spline functions for curve fitting
LRL-10034 B72-10311 09
Computer program for fitting low-order polynomial splines by method of least squares
LEWIS-11651 B72-10585 09

SPLITTING

Slitting flat conductor cables with the single cutting edge slitter
M-FS-20111 B72-10575 07

SPOILERS

Integrated flight controller for light aircraft
ARC-10456 B72-10213 06

SPONGES (MATERIALS)

Improved biomedical electrode
MSC-13648 B72-10642 05

SPORES

Quartz crystal microbalance use in biological studies
NPO-11346 B72-10243 05

SPOT WELDS

Strain gage attachment by spot welding reduces the fatigue strength of Ti-6Al-4V, Rene 41, and Inconel X
LANGLEY-10930 B72-10339 04

SPRAYING

Deflection resistance indicator
M-FS-24010 B72-10401 04

SPRINGS (ELASTIC)

Gyro spring augmentation system
ARC-10496 B72-10010 06
Solenoid-operated swing-check valve
XAC-10048 B72-10037 06

STABILIZERS (AGENTS)

Quick release acoustic sensor holding fixture

MSC-17457 B72-10076 02
Turbopump radial and axial rotor support system
M-FS-21495 B72-10264 07

Simple turbine balancing test apparatus
LEWIS-11658 B72-10377 07

Deflection resistance indicator
M-FS-24010 B72-10401 04

Mechanically and thermally stable mass cavity resonator
HQ-10790 B72-10523 01

SPUTTERING

High-temperature, long-life thyratron
LEWIS-11327 B72-10134 01

Thermocouple tape
LEWIS-11072 B72-10515 04

Sputter etching of hemispherical bearings
HQ-10712 B72-10534 08

SQUARE WAVES

Pulse excitation of bolometer bridges
ARC-10292 B72-10054 01

Simple non-destructive tests for electroexplosive devices
NPO-11563 B72-10315 01

SQUIBS

Propellant-powered actuator for gas generators
ARC-10484 B72-10008 03
Squib-actuated disconnect device
NPO-11544 B72-10097 06
Squib-operated disconnect
NPO-11330 B72-10713 06

STABILITY

Covalent bonding of antibodies of polystyrene latex beads: A concept
MSC-13906 B72-10006 05

Quick, easy to prepare freeze-dried soups

MSC-14003 B72-10017 05
High strength, medium density molded foam

AEC-10053 B72-10235 04
Hybrid holographic system

M-FS-20074 B72-10260 03
Magnets with stabilized conductors

HQ-10727 B72-10465 03
Compensator design for low-sensitivity linear time-invariant systems (COMPDES)

M-FS-21652 B72-10486 09
Humidity resistant solar cell contacts

HQ-10674 B72-10517 04
Thermal induced flow oscillations in heat exchangers for supercritical fluids

M-FS-21262 B72-10598 06
Fast response densitometer for measuring liquid density

M-FS-14478 B72-10664 02
A stable liquid crystal for electro-optical displays

HQ-10714 B72-10746 04
Effects of nonuniform swash-plate stiffness on coupled blade-control system dynamics and stability

LANGLEY-11068 B72-10749 06

STABILIZED PLATFORMS

Computer program to generate attitude error equations for a gimbal platform
M-FS-21991 B72-10624 09

STABILIZERS (AGENTS)

Stabilization of lactate dehydrogenase
ARC-10415 B72-10062 05

STACKS

Remote control flare stack igniter for combustible gases
M-FS-21675 872-10352 07

STAGE SEPARATION

Squib-actuated disconnect device
NPO-11544 872-10097 06

STAGNATION POINT

Dispersion ring reduces injector orifice-to-orifice flow variation
MSC-15953 872-10117 07

STAGNATION PRESSURE

A stagnation pressure probe for use in supersonic flow
LANGLEY-11139 872-10543 06

STAINING

Silver stain for electron microscopy
ARC-10661 872-10415 05

STAINLESS STEELS

Simple method for forming thin-wall pressure vessels
ARC-10511 872-10025 08

Heart catheter cable and connector
ARC-10406 872-10200 05

A protective coating for stainless steel
LEWIS-11267 872-10256 04

Strain gage attachment by spot welding reduces the fatigue strength of Ti-6Al-4V, Rene 41, and Inconel X
LANGLEY-10930 872-10339 04

Noncontaminating technique for making holes in existing process systems
LEWIS-11595 872-10385 07

Ion plating seals microcracks or porous metal components
LEWIS-11657 872-10397 04

Magnets with stabilized conductors
HQ-10727 872-10465 03

Thermal conductivity and electrical resistivity of porous materials
LEWIS-11754 872-10587 04

Precision machining of steel decahedrons
M-FS-21361 872-10597 07

Implantable drug therapy device: A concept
NPO-11934 872-10708 05

STANDARDIZATION

Standardization and qualification of computer programs for circuit design
M-FS-21537 872-10142 09

STARTERS

Electrodynamic actuators for rocket engine valves
ARC-10486 872-10009 06

STARTING

Sonic limitations and startup problems of heat pipes
AEC-10036 872-10368 03

STATIC ELECTRICITY

Gate protective device for insulated gate field-effect transistors
M-FS-21626 872-10149 01

STATIC INVERTERS

A simplified, compact static shift register
HQ-10723 872-10591 02

STATIC PRESSURE

Internal capillary insulation for cryogenic tanks
LEWIS-11234 872-10626 06

STATISTICAL ANALYSIS

Computer program for fitting low-order polynomial splines by method of least squares
LEWIS-11651 872-10585 09

Program for standard statistical distributions
M-FS-21466 872-10602 09

Spectral analysis of multiple time series
M-FS-18859 872-10614 09

STATISTICAL DISTRIBUTIONS

Program for standard statistical distributions
M-FS-21466 872-10602 09

STATORS

A brushless dc spin motor for momentum exchange altitude control
M-FS-14952 872-10448 02

STEADY FLOW

Nonsteady flow-direction measurement
LEWIS-11499 872-10403 06

STEADY STATE

High noise immunity one shot
ARC-10137 872-10047 01

Comparison of catalyst activity
ARC-10493 872-10201 04

Simple, reproducible methods for thermal shock testing of brittle materials
NUC-11020 872-10228 06

STEAM

Hydraulic modeling of heat dispersion in large lakes
AEC-10003 872-10039 03

Low temperature catalytic ignition of hydrogen and oxygen
ARC-10492 872-10127 03

Watertight low-cost electrical connector
LEWIS-11552 872-10506 01

STEELS

Experimental study of surface cracks
MSC-14032 872-10019 04

Solenoid-operated swing-check valve
XAC-10048 872-10037 06

Removal of filler material from large high energy formed parts
M-FS-16326 872-10104 06

New twisted intermetallic compound superconductor: A concept
LEWIS-11015 872-10282 04

A tool for cutting ultra thin slits in metals
KSC-10770 872-10433 07

STELLAR ROTATION

Interferometric rotation sensor
ARC-10278 872-10274 03

STERILIZATION

Heart catheter cable and connector
ARC-10406 872-10200 05

Intravenous fluid flow meter concept for zero gravity environment
MSC-14123 872-10461 05

STIFFNESS

Gyro spring augmentation system
ARC-10496 872-10010 06

Titanium reinforced boron polyimide composite
M-FS-21916 872-10353 04

Multiple reaction mass and isolation system
M-FS-24119 872-10441 06

Program to reduce the size of structural matrices
MSC-17619 872-10625 09

Effects of nonuniform swash-plate stiffness on coupled blade-control system dynamics and stability
LANGLEY-11068 872-10749 06

STILBENE

Erasable holographic medium using cis-trans isomerization
M-FS-22062 872-10720 03

STIMULATION

An improved aesthesiometer
MSC-13609 872-10032 05

STOICHIOMETRY

Carbon monoxide oxidation rates computed for automobile thermal reactor conditions
LEWIS-11638 872-10137 04

STOMACH

Sensor capsule for diagnosis of gastric disorders
HQ-10767 872-10531 05

STORAGE BATTERIES

Electrodes for sealed secondary batteries
ARC-10238 872-10050 02

STORAGE STABILITY

Stabilization of lactate dehydrogenase
ARC-10415 872-10062 05

STORAGE TANKS

Hermetic isolation valves
ARC-10505 872-10013 06

Thermal control for storage of cryogenic propellants in a common-bulkhead tank: A concept
ARC-10558 872-10276 03

Safe transport of diborane in a dual refrigerant system: A concept
ARC-10559 872-10277 03

Thermal control for storage of cryogenic propellants in a multiple-tank system: A concept
ARC-10560 872-10278 03

Automatic water inventory, collecting, and dispensing unit
LANGLEY-11071 872-10663 06

STRAIN GAGES

Rising-plate rheometer
ARC-10524 872-10026 03

Bileaf mechanical strain gage
ARC-10303 872-10197 07

Remote weighing device
M-FS-21556 872-10325 07

Strain gage attachment by spot welding reduces the fatigue strength of Ti-6Al-4V, Rene 41, and Inconel X
LANGLEY-10930 872-10339 04

A monostain test apparatus
M-FS-24221 872-10679 06

Insulated-gate field-effect transistor strain sensor
LANGLEY-11012 872-10731 01

STRAPDOWN INERTIAL GUIDANCE

Precision machining of steel decahedrons
M-FS-21361 872-10597 07

STRAPS

Perload indicating turnbuckle
M-FS-21488 872-10355 07

STRESS

Removal of filler material from large high energy formed parts
M-FS-16326 872-10104 06

STRESS ANALYSIS

Structural design and stress analysis program for advanced composite filament-wound axisymmetric pressure vessels (COMTANK)
NPO-11943 872-10073 09

Ball bearing protector
M-FS-21612 872-10322 07

SUBJECT INDEX

Nondestructive testing for braze voids in thin panels by use of special coatings
 LANGLEY-10486 B72-10374 08

STRESS CONCENTRATION
 Isogrid structure
 M-FS-21567 B72-10323 06

STRESS CORROSION
 Titanium alloy stress corrosion cracking in presence of dinitrogen tetroxide
 M-FS-21113 B72-10321 04

STRESS MEASUREMENT
 Bileaf mechanical strain gage
 ARC-10303 B72-10197 07

STRESS RATIO
 Strain gage attachment by spot welding reduces the fatigue strength of Ti-6Al-4V, Rene 41, and Inconel X
 LANGLEY-10930 B72-10339 04

STRESS RELAXATION
 Improved high-temperature gimbale joint
 LEWIS-11705 B72-10489 06

STRESS RELIEVING
 Repeatable method of thermal stress fracture test of brittle materials
 NUC-11019 B72-10258 06
 High temperature permeameter for measuring magnetic properties
 LEWIS-11609 B72-10443 03

STRESSES
 Weight simulator
 ARC-10100 B72-10046 05

STRIPPING (DISTILLATION)
 Nonflammable and abrasion resistant coating process for glass fibers
 MSC-14024 B72-10445 08

STROBOSCOPES
 Noncontact torque measurement using stroboscopic techniques
 MSC-12282 B72-10332 07

STRUCTURAL ANALYSIS
 Use of thin plastic films at cryogenic temperatures
 LEWIS-11047 B72-10038 04
 Structural design and stress analysis program for advanced composite filament-wound axisymmetric pressure vessels (COMTANK)
 NPO-11943 B72-10073 09
 Electromagnetic rheometer
 ARC-10525 B72-10416 04
 Vibrational transfer functions for complex structures
 M-FS-20744 B72-10648 09

STRUCTURAL DESIGN
 Techniques for improving reliability of computers
 M-FS-21326 B72-10109 02
 A cryopump for cooling objects at a distance
 LRL-10031 B72-10314 03
 Isogrid structure
 M-FS-21567 B72-10323 06
 A permeable rotating-wheel solvent extractor
 LRL-10033 B72-10343 04
 Guidelines for fabrication of hybrid microcircuits
 M-FS-21964 B72-10393 01

STRUCTURAL DESIGN CRITERIA
 Fabrication of carbon film composites for high-strength structures
 ARC-10613 B72-10423 04
 Design criteria monograph for pressurized metal cases
 LEWIS-11835 B72-10633 04

Design criteria monograph on turbopump inducers
 LEWIS-11824 B72-10635 08

STRUCTURAL ENGINEERING
 Design criteria monograph on turbopump inducers
 LEWIS-11824 B72-10635 08

STRUCTURAL FAILURE
 Prediction of flow-induced failures of braided flexible hoses and bellows
 M-FS-19004 B72-10407 06

STRUCTURAL STABILITY
 Experimental study of surface cracks
 MSC-14032 B72-10019 04
 Strengthening lightweight concrete
 AEC-10017 B72-10430 04

STRUCTURAL VIBRATION
 Snap dynamics
 M-FS-21531 B72-10265 09
 Spectral analysis of multiple time series
 M-FS-18859 B72-10614 09

STRUTS
 Removal of filler material from large high energy formed parts
 M-FS-16326 B72-10104 06

STYRENES
 Photoemissive coating
 M-FS-22003 B72-10638 08

STYROFOAM (TRADEMARK)
 Simple gas chromatographic system for analysis of microbial respiratory gases
 ARC-10403 B72-10207 03
 Temperature control of a cryogenic bath
 HQ-10788 B72-10532 03

SUBASSEMBLIES
 Radioisotope thermionic power supply for spacecraft
 ARC-10438 B72-10212 03

SUBMARINES
 Solid amine compounds as sorbents for carbon dioxide: A concept
 ARC-10571 B72-10421 04

SUBMERGING
 Wide-range dynamic pressure sensor
 ARC-10263 B72-10196 03
 Water impact loads
 M-FS-21955 B72-10621 09

SUBREFLECTORS
 Compensating subreflector for two-reflector antennas: A concept
 NPO-11503 B72-10093 06

SUBROUTINES
 Computer program for natural gas flow through nozzles
 LEWIS-11534 B72-10362 09
 Analytic procedures for determining dimensional redundancies in electronic devices
 HQ-10709 B72-10656 09
 Geometric field-line calculations
 GSFC-11597 B72-10674 09
 FORTRAN program for generating a two-dimensional orthogonal mesh between two arbitrary boundaries
 LEWIS-11863 B72-10753 09

SUBSONIC FLOW
 A stagnation pressure probe for use in supersonic flow
 LANGLEY-11139 B72-10543 06

SUBSTRATES
 Piezoelectric transducer mosaic
 ARC-10509 B72-10014 01
 Beryllium thin films for resistor applications
 ARC-10485 B72-10021 01

SUPERSONIC FLIGHT

Isotropic pyrolytic carbons
 ARC-10532 B72-10029 04

Piezoelectric actuator uses sequentially-excited multiple elements: A concept
 NPO-11527 B72-10096 01

Gate protective device for insulated gate field-effect transistors
 M-FS-21626 B72-10149 01
 Flexible, low-cost silicon solar cell arrays
 LEWIS-11069 B72-10177 02
 Solar sensor with autocollimator
 ARC-10148 B72-10192 03

SUITS
 Sterile chamber operation with bio-isolator suit system
 LANGLEY-11054 B72-10547 05

SULFUR OXIDES
 Urban air pollution dispersion model
 AEC-10004 B72-10003 03
 Fluidized-bed combustion reduces atmospheric pollutants
 AEC-10085 B72-10431 04

SULFURIC ACID
 Cell for electrolysis of water vapor
 ARC-10521 B72-10166 03

SUMPS
 Cavitating Venturi sump
 ARC-10504 B72-10012 06

SUN
 Solar sensor with autocollimator
 ARC-10148 B72-10192 03

SUNSPOT CYCLE
 Sunspot analysis and prediction
 M-FS-21724 B72-10317 03

SUPERCONDUCTING MAGNETS
 Alternating current losses in superconducting coils
 M-FS-21129 B72-10360 03
 Magnets with stabilized conductors
 HQ-10727 B72-10465 03

SUPERCONDUCTORS
 New twisted intermetallic compound superconductor: A concept
 LEWIS-11015 B72-10282 04
 Control of oscillations in a discharge circuit
 ARC-10556 B72-10304 01
 Alternating current losses in superconducting coils
 M-FS-21129 B72-10360 03
 Magnets with stabilized conductors
 HQ-10727 B72-10465 03

SUPERCOOLING
 Liquid methane gelled with methanol and water reduces rate of nitrogen absorption
 LEWIS-11574 B72-10330 06
 Phase-change materials handbook
 M-FS-22064 B72-10464 04

SUPERCRITICAL FLOW
 Thermal induced flow oscillations in heat exchangers for supercritical fluids
 M-FS-21262 B72-10598 06

SUPERHIGH FREQUENCIES
 Accurate measurement of telemetry performance
 NPO-11457 B72-10089 02

SUPERSONIC AIRCRAFT
 Evaluation of jet engine noise
 M-FS-21416 B72-10263 03

SUPERSONIC FLIGHT
 Misfit and miss-drag programs
 LANGLEY-10932 B72-10153 09

SUPERSONIC FLOW

A stagnation pressure probe for use in supersonic flow
LANGLEY-11139 B72-10543 06
 Study of high altitude plume impingement
M-FS-21414 B72-10601 09

SUPERSONIC NOZZLES

Design of two-dimensional sharp-edged-throat supersonic nozzle with boundary-layer correction
LEWIS-11636 B72-10070 09

SUPERSONIC SPEEDS

Continuous-flow variable-density wind tunnel facilities
NPO-11287 B72-10078 06
 Mislift and miss-drag programs
LANGLEY-10932 B72-10153 09
 Evaluation of jet engine noise
M-FS-21416 B72-10263 03
 Separation of gas mixtures by centrifugation
ARC-10449 B72-10270 03

SUPERSONIC WIND TUNNELS

Continuous-flow variable-density wind tunnel facilities
NPO-11287 B72-10078 06
 A stagnation pressure probe for use in supersonic flow
LANGLEY-11139 B72-10543 06

SUPPORT SYSTEMS

Turbopump radial and axial rotor support system
M-FS-21495 B72-10264 07

SUPPORTS

Position indicating, rotating boom
LANGLEY-11202 B72-10066 07
 Low-friction ball-and-socket
NPO-11348 B72-10081 08
 Ball bearing protector
M-FS-21612 B72-10322 07
 Restraint and locomotion aid
ARC-10153 B72-10558 06

SURFACE CRACKS

Experimental study of surface cracks
MSC-14032 B72-10019 04

SURFACE DEFECTS

Acoustic emission used as weld quality monitor
AEC-10018 B72-10427 08

SURFACE DIFFUSION

Prevention of cathode damage from positive ion bombardment
HQ-10688 B72-10654 03

SURFACE FINISHING

A new low-cost method for producing collimating mirrors
LEWIS-11553 B72-10513 08
 Sintered diamond compacts using metallic cobalt binders
HQ-10706 B72-10519 04
 Sputter etching of hemispherical bearings
HQ-10712 B72-10534 08
 Machine finishes balls to high degree of roundness
M-FS-21448 B72-10595 08
 Electro-chemical grinding
LANGLEY-10801 B72-10744 08

SURFACE GEOMETRY

Prevention of cathode damage from positive ion bombardment
HQ-10688 B72-10654 03

SURFACE PROPERTIES

Program for determination of radiation interchange factors
MSC-17563 B72-10071 09

A method of eliminating hydrogen maser wall shift
HQ-10663 B72-10670 03

SURFACE REACTIONS

Study of in-situ degradation of thermal control surfaces
M-FS-20892 B72-10336 04

SURFACE VEHICLES

A simple dead-reckoning navigational system
M-FS-21165 B72-10409 02
 Tandem steerable running gear
M-FS-22012 B72-10499 07
 Triangular wheel locomotion mechanism
NPO-11366 B72-10714 06

SURGERY

Cutting thin sections of bone
ARC-10555 B72-10303 05

SURGICAL INSTRUMENTS

Cutting thin sections of bone
ARC-10555 B72-10303 05

SURVEYS

Improved laboratory gradiometer can be a field survey instrument
MSC-13980 B72-10001 03
 Gravitational gradiometer, measures mass changes
M-FS-20814 B72-10140 03
 Survey of aircraft electrical power systems
LEWIS-11678 B72-10383 02

SUSPENSION SYSTEMS (VEHICLES)

Continuous-flow variable-density wind tunnel facilities
NPO-11287 B72-10078 06
 Three-point compound sine plate offers cost and weight savings
MSC-15818 B72-10118 07

SWITCHES

Ferromagnetic-fluid logic devices
ARC-10503 B72-10011 06
 A hybrid electromechanical solid state switch for ac power control
MSC-14005 B72-10018 02
 Tornado detector and alarm
M-FS-20915 B72-10106 01
 Frequency switch keyed oscillator
ARC-10412 B72-10124 01
 Miniature intermittent contact switch
ARC-10450 B72-10271 01
 Current switch has built-in time delay:
 A concept
MSC-17324 B72-10453 01

SWITCHING CIRCUITS

Peak acceleration limiter
NPO-10556 B72-10007 01
 Improved device measures performance of batteries under load
ARC-10252 B72-10051 02
 Topological solution of bilateral switching networks
ARC-10294 B72-10055 01
 Time-adjusted variable resistor
NPO-11306 B72-10116 01
 Electronic switching circuit uses complementary non-linear components
AEC-10060 B72-10236 01
 Dual redundant core memory systems
MSC-13993 B72-10261 09
 Interferometer using RF switching matrix
GSFC-11051 B72-10462 01

Pulse-width-modulated device for precision temperature control
NPO-11407 B72-10507 02

Patient's breath controls, comfort devices
LANGLEY-11138 B72-10533 05

Peak-power-point monitor for solar panel
NPO-11708 B72-10694 02

Insulated-gate field-effect transistor strain sensor
LANGLEY-11012 B72-10731 01

Wideband wattmeter for instant measurement of real power
LEWIS-11698 B72-10737 01

SYMMETRY
 Snap dynamics
M-FS-21531 B72-10265 09

SYNCHRONISM
 Aircraft communication via telefacsimile system
M-FS-20839 B72-10139 02

Differential input preamplifier
ARC-10489 B72-10165 01

SYNTHESIS
 Flame resistant elastic elastomeric fibers
MSC-13923-4 B72-10005 04

Polyimide foams provide thermal insulation and fire protection
ARC-10464 B72-10300 04

Synthesis of temperature and solvent-resistant polymers
M-FS-20848 B72-10342 04

Polymeric binder for explosives
AEC-10062 B72-10366 04

Bondability of RTV silicon rubber
AEC-10026 B72-10367 04

Immobilized phosphorylase for synthesis of polysaccharides from glucose
ARC-10680 B72-10550 04

A process yields large quantities of pure ribosome subunits
HQ-10662 B72-10653 05

SYSTEM EFFECTIVENESS
 Systems effectiveness evaluation program
HQ-10306 B72-10458 09

SYSTEM FAILURES
 Acoustical analysis system
GSFC-11087 B72-10751 02

SYSTEMS ANALYSIS
 Broadband RF-distribution amplifier
NPO-11401 B72-10245 01

Design curve for liquid helium storage vessels
LEWIS-11498 B72-10286 02

Mathematical techniques for estimating operational readiness of complex systems
MSC-17694 B72-10335 09

Expandable coating cocoon leak detection system
M-FS-21848 B72-10380 06

Survey of aircraft electrical power systems
LEWIS-11678 B72-10383 02

A closed loop cryogenic environment pressure regulating system
MSC-13880 B72-10390 02

Phosphonium chloride for thermal storage
ARC-10572 B72-10422 04

Computer program analyzes and monitors electrical power systems (POSIMO)
GSFC-11505 B72-10610 09

SUBJECT INDEX

Solar powered absorption cycle heat pump using phase change materials for energy storage
M-FS-21927 B72-10615 06

Analytic procedures for determining dimensional redundancies in electronic devices
HQ-10709 B72-10656 09

Acoustical analysis system
GSFC-11087 B72-10751 02

SYSTEMS ENGINEERING

Thermal control for storage of cryogenic propellants in a multiple-tank system: A concept
ARC-10560 B72-10278 03

A method for calculating the effects of design errors and measurement errors on pump performance
LEWIS-11503 B72-10292 07

The design of an automated verification of redundant systems
KSC-10702 B72-10295 02

Twistable mold for helicopter blades
ARC-10682 B72-10432 08

Very high speed direct-readout, control and recording system
M-FS-20658 B72-10442 02

Combination pressure regulator and safety valve: A concept
MSC-14088 B72-10446 06

Specification guidelines for hybrid microcircuits
M-FS-22090 B72-10474 01

Compensator design for low-sensitivity linear time-invariant systems (COMPDES)
M-FS-21652 B72-10486 09

Tandem steerable running gear
M-FS-22012 B72-10499 07

Advanced high-temperature electromagnetic pump
LEWIS-11283 B72-10537 07

An improved gas extraction furnace
MSC-14138 B72-10544 04

Computer program for quasi-three-dimensional calculation of surface velocities and choking flow for turbomachine blade rows
LEWIS-11635 B72-10586 09

Computer program analyzes and monitors electrical power systems (POSIMO)
GSFC-11505 B72-10610 09

Design criteria monograph for high-load high-speed rolling-contact bearings
LEWIS-11823 B72-10627 04

Design criteria monograph on solid rocket motor igniters
LEWIS-11826 B72-10715 06

T

TABLES (DATA)

Analog table look-up device identifies unknown terrain
MSC-13816 B72-10033 03

Topological solution of bilateral switching networks
ARC-10294 B72-10055 01

Frequency-wavelength calculator with table of dielectric properties
GSFC-11200 B72-10472 03

Design criteria monograph for pressurized metal cases
LEWIS-11835 B72-10633 04

TABLETS

An ingestible temperature-transmitter
ARC-10583 B72-10275 01

TACHOMETERS

A simple tachometer circuit
ARC-10603 B72-10308 01

TACTILE DISCRIMINATION

Convuluted fabric for full-pressure gloves
ARC-10529 B72-10215 04

TANKS (CONTAINERS)

Structural design and stress analysis program for advanced composite filament-wound axisymmetric pressure vessels (COMTANK)
NPO-11943 B72-10073 09

Prolate spheroidal slosh model for fluid motion
MSC-13864 B72-10182 09

TANTALUM

Tungsten-reinforced tantalum
LEWIS-11750 B72-10684 04

TAPE RECORDERS

Technique minimizes the effects of dropouts on telemetry records
NPO-11421 B72-10088 02

Video information system
M-FS-21711 B72-10267 09

TAPERING

Specimen for high-temperature tensile tests
ARC-10531 B72-10028 04

TAPES

Self-deploying boom
GSFC-10566 B72-10574 07

TEFLON (TRADEMARK)

Promotion of dropwise condensation of ethyl alcohol, methyl alcohol, and acetone by polytetrafluoroethylene
LANGLEY-10940 B72-10115 04

Improved high-performance shock tube
NPO-11885 B72-10242 03

Fabrication of uniaxial filament-reinforced epoxy tubes for structural application
LANGLEY-10203 B72-10340 04

Low cost anti-galling bushings
LEWIS-11724 B72-10359 08

Improved universal electrical connector
M-FS-14741 B72-10363 01

A sonic transducer to detect fluid leaks
KSC-10704 B72-10376 01

Watertight low-cost electrical connector
LEWIS-11552 B72-10506 01

TELEMETRY

Remote sensing X-ray spectrometer
MSC-13978 B72-10016 03

Third order digital-to-analog converter
MSC-12458 B72-10030 02

Implanted telemeter for electrocardiogram and body temperature
XAC-08505 B72-10035 05

Lightweight, broad-band spectrum analyzer
ARC-10405 B72-10060 01

Technique minimizes the effects of dropouts on telemetry records
NPO-11421 B72-10088 02

Accurate measurement of telemetry performance
NPO-11457 B72-10089 02

Universal dc signal conditioner
MSC-17526 B72-10510 02

TEMPERATURE COMPENSATION

Two autowire versions for CDC-3200 and IBM-360
GSFC-11526 B72-10608 09

A range expanding signal conditioner
M-FS-21720 B72-10639 02

TELEOPERATORS

Miniature intermittent contact switch
ARC-10450 B72-10271 01

TELESCOPES

Assessment of water pollution by airborne measurement of chlorophyll
ARC-10648 B72-10566 04

Self-calibrating remote atmospheric electromagnetic probe and data acquisition system
M-FS-21212 B72-10665 03

TELEVISION CAMERAS

Cine recording ophthalmoscope
ARC-10399 B72-10189 05

Hand-held photomicroscopy system
ARC-10468 B72-10190 03

Solid state television camera has no imaging tube
M-FS-21553 B72-10254 02

Video information system
M-FS-21711 B72-10267 09

Vidicon storage tube electrical input/output
MSC-14053 B72-10285 02

A proposed remote manipulator system: A concept
MSC-14245 B72-10733 06

TELEVISION EQUIPMENT

Tornado detector and alarm
M-FS-20915 B72-10106 01

Roll function in a flight simulator
ARC-10557 B72-10417 02

Neutron radiographic viewing system
M-FS-22024 B72-10468 02

A visual-display and storage device
GSFC-10901 B72-10647 02

TELEVISION RECEIVERS

Solid state television camera has no imaging tube
M-FS-21553 B72-10254 02

TELEVISION SYSTEMS

Video information system
M-FS-21711 B72-10267 09

A study of the power spectral density of an FM signal
M-FS-21070 B72-10361 02

TEMPERATURE

High-temperature, long-life thyratron
LEWIS-11327 B72-10134 01

Comparison of catalyst activity
ARC-10493 B72-10201 04

A valve concept for remote fluid flow control
M-FS-16097 B72-10400 07

Sensor capsule for diagnosis of gastric disorders
HQ-10767 B72-10531 05

Computer program for quasi-three-dimensional calculation of surface velocities and choking flow for turbomachine blade rows
LEWIS-11635 B72-10586 09

Program to produce horizontal stereographic print maps from Nimbus HRIR data
GSFC-11397 B72-10606 09

TEMPERATURE COMPENSATION

Precision voltage regulator
NPO-11502 B72-10092 01

Temperature compensation of light-emitting diodes
ARC-10467 B72-10218 01

- Thermally stable structural framework
ARC-10612 872-10252 08
- Improved high-temperature gimbal joint
LEWIS-11705 872-10489 06
- ### TEMPERATURE CONTROL
- Soldering iron temperature indicator
NPO-11545 872-10098 02
- Preventing oil migration in vacuum systems
GSFC-11253 872-10129 04
- Closed-cycle power supply for fluidic control systems
ARC-10480 872-10163 06
- Feedback control of variable conductance heat pipes
ARC-10460 872-10169 03
- Improved synthesis of intermetal compounds
HQ-10690 872-10172 04
- Repeatable method of thermal stress fracture test of brittle materials
NUC-11019 872-10258 06
- Thermal control for storage of cryogenic propellants in a common-bulkhead tank: A concept
ARC-10558 872-10276 03
- Safe transport of diborane in a dual refrigerant system: A concept
ARC-10559 872-10277 03
- Phase-change materials handbook
M-FS-22064 872-10464 04
- Pulse-width-modulated device for precision temperature control
NPO-11407 872-10507 02
- Temperature control of a cryogenic bath
HQ-10788 872-10532 03
- Breathing-metabolic simulator
HQ-10766 872-10657 05
- Temperature and humidity control of simulated human breath
HQ-10778 872-10660 05
- A method of eliminating hydrogen maser wall shift
HQ-10663 872-10670 03
- ### TEMPERATURE DISTRIBUTION
- Hydraulic modeling of heat dispersion in large lakes
AEC-10003 872-10039 03
- Analysis of thermal stress and metal movement during welding
M-FS-20984 872-10333 04
- Investigations of a turbulent jet in a crossflow
LEWIS-11680 872-10437 06
- Computer program for calculating the temperature field of face seals
LEWIS-11110 872-10483 09
- ### TEMPERATURE EFFECTS
- Thermally stable structural framework
ARC-10612 872-10252 08
- Catalyst for sodium chlorate decomposition
ARC-10584 872-10305 04
- Adhesive for aluminum withstands cryogenic temperatures
M-FS-16848 872-10346 04
- Common bearing material has highest fatigue life at moderate temperature
LEWIS-11592 872-10382 04
- Cavitation data for hydraulic equipment
LEWIS-11642 872-10384 07
- Right angle mounted cold trap
GSFC-11323 872-10436 06
- Improved high-temperature gimbal joint
LEWIS-11705 872-10489 06
- Floating zone process for drawing small diameter fibers of refractory materials
LEWIS-11380 872-10491 04
- Watertight low-cost electrical connector
LEWIS-11552 872-10506 01
- Carbon dioxide concentration indicator
HQ-10582 872-10526 05
- Oxygen plasmas used to synthesize superoxides
ARC-10686 872-10570 04
- Thermal induced flow oscillations in heat exchangers for supercritical fluids
M-FS-21262 872-10598 06
- An approach to real-time process control of semiconductor wire-bonding
M-FS-21558 872-10644 08
- ### TEMPERATURE GRADIENTS
- Atmospheric density variations related to internal gravity waves
M-FS-21637 872-10143 03
- Long-term drift of thermocouples at 1600 K
LEWIS-11471 872-10176 01
- Repeatable method of thermal stress fracture test of brittle materials
NUC-11019 872-10258 06
- Computer program for calculating the temperature field of face seals
LEWIS-11110 872-10483 09
- Tungsten-reinforced tantalum
LEWIS-11750 872-10684 04
- Low-void polyimide resins for autoclave processing
LEWIS-11665 872-10728 04
- Heat transfer correlations for kerosene fuels and mixtures and physical properties for Jet A fuel
LEWIS-11652 872-10742 04
- ### TEMPERATURE INVERSIONS
- Improved synthesis of intermetal compounds
HQ-10690 872-10172 04
- ### TEMPERATURE MEASUREMENT
- Superior cryogenic insulation developed
M-FS-21560 872-10187 04
- Bileaf mechanical strain gage
ARC-10303 872-10197 07
- Determination of impact sensitivity of materials at high pressures
MSC-13700 872-10216 07
- A compact battery powered digital thermometer
MSC-14084 872-10545 02
- A thermocouple thermode for small animals
ARC-10550 872-10559 05
- Measurement of electron density and temperature in plasmas
ARC-10598 872-10563 03
- An approach to real-time process control of semiconductor wire-bonding
M-FS-21558 872-10644 08
- A multielement probe for coincident temperature and pressure measurements
LEWIS-11775 872-10716 06
- ### TEMPERATURE MEASURING INSTRUMENTS
- Bileaf mechanical strain gage
ARC-10303 872-10197 07
- An ingestible temperature-transmitter
ARC-10583 872-10275 01
- ### TEMPERATURE PROFILES
- SINDA, systems improved numerical, differencing analyzer.
MSC-13805 872-10736 09
- ### TEMPERATURE SCALES
- Low temperature scale for a 1 to 20 degree Kelvin region
AEC-10007 872-10146 03
- A compact battery powered digital thermometer
MSC-14084 872-10545 02
- ### TEMPLATES
- Twistable mold for helicopter blades
ARC-10682 872-10432 08
- ### TENSILE DEFORMATION
- Bileaf mechanical strain gage
ARC-10303 872-10197 07
- ### TENSILE STRENGTH
- Beryllium thin films for resistor applications
ARC-10485 872-10021 01
- Development of a polyimide for use as a temperature and solvent resistant sealant
M-FS-21325 872-10262 04
- High strength alloy for immediate temperature, 24 to 704 C (75 to 1300 F), applications
LEWIS-11634 872-10344 04
- Adhesive for aluminum withstands cryogenic temperatures
M-FS-16848 872-10346 04
- Leaching of nitroso rubber material removes uncured polymer
MSC-17185 872-10449 04
- A monostain test apparatus
M-FS-24221 872-10679 06
- ### TENSILE STRESS
- Experimental study of surface cracks
MSC-14032 872-10019 04
- Bileaf mechanical strain gage
ARC-10303 872-10197 07
- ### TENSILE TESTS
- Specimen for high-temperature tensile tests
ARC-10531 872-10028 04
- Quick release acoustic sensor holding fixture
MSC-17457 872-10076 02
- Dispersion-strengthened chromium alloy
LEWIS-10982 872-10378 04
- A tool for measuring elevator cable tension
KSC-10708 872-10509 07
- ### TENSION
- Perload indicating turnbuckle
M-FS-21488 872-10355 07
- ### TERBIUM
- Improved intensifying screen reduces X-ray exposure
AEC-10090 872-10232 03
- ### TERMINAL VELOCITY
- Optimized braking of landing vehicles with atmospheric drag
NPO-11402 872-10084 06
- ### TERRAIN ANALYSIS
- Analog table look-up device identifies unknown terrain
MSC-13816 872-10033 03
- ### TEST CHAMBERS
- Particle detection by a light-scattering technique
ARC-10384 872-10160 03
- Baffle to confine glow discharge in ion pump
M-FS-21575 872-10324 03

Efficient baffle prevents oil backstreaming in diffusion pumps
 LRL-10025 872-10475 07
 Sterile chamber operation with bio-isolator suit system
 LANGLEY-11054 872-10547 05

TEST EQUIPMENT
 Peak acceleration limiter
 NPO-10556 872-10007 01
 Software control for large scale on-board checkout: A concept
 MSC-13977 872-10015 09
 Visual sensitivity tester
 ARC-10329 872-10203 05
 Quartz crystal microbalance use in biological studies
 NPO-11346 872-10243 05
 Oxygen carrier for gas chromatographic analysis of inert gases in propellants
 ARC-10574 872-10249 04
 Flow equation for porous plug and capillary tube flow restrictors
 GSFC-11387 872-10289 06
 Nondestructive testing of microtab welds
 ARC-10176 872-10296 02
 A simple tachometer circuit
 ARC-10603 872-10308 01
 Remote weighing device
 M-FS-21556 872-10325 07
 Small turbine-type flowmeters for liquid hydrogen
 LEWIS-11535 872-10331 06
 Simple turbine balancing test apparatus
 LEWIS-11658 872-10377 07
 Expandable coating cocoon leak detection system
 M-FS-21848 872-10380 06
 Two-axis leveling detector system
 M-FS-21344 872-10392 02
 Rapid evaluation of reverse-osmosis membranes
 ARC-10659 872-10413 04
 Technique for increasing yield of trifluoronitrosomethane-tetrafluoroethylene lymer lymer
 ARC-10566 872-10418 04
 Multiple reaction mass and isolation system
 M-FS-24119 872-10441 06
 High temperature permeameter for measuring magnetic properties
 LEWIS-11609 872-10443 03
 New meter probes provide protection from high current power sources at potentials up to 600 volts
 LANGLEY-10804 872-10455 01
 Constant tension device for gravity simulation
 M-FS-21618 872-10466 06
 A system for early warning of bearing failure
 M-FS-21877 872-10494 06
 Magnetic circuitry mutual coupling probe
 M-FS-21664 872-10535 02
 Micro-scale crease-and-fold apparatus
 NPO-12029 872-10552 06
 Helium window for shock-tube monochromators
 NPO-11852 872-10556 03
 Oxygen plasmas used to synthesize superoxides
 ARC-10686 872-10570 04
 Laser mass spectrometer
 ARC-10687 872-10571 03

Oscillation of laser-beam intensity as observed with beam splitters
 ARC-10694 872-10572 03
 Leak test system
 M-FS-21788 872-10576 06
 A transmitting and reflecting diffuser for ultraviolet light
 LANGLEY-10385 872-10611 03
 Polyimide bonded graphite fluoride: A new long life solid lubricant coating
 LEWIS-11864 872-10628 04
 Magnetometer uses bismuth-selenide
 LEWIS-11632 872-10629 03
 Use of small turbine-type flowmeters to measure flow in large pipes
 LEWIS-11851 872-10631 06
 A monostrain test apparatus
 M-FS-24221 872-10679 06
 New detection method for rolling element and bearing defects
 M-FS-21911 872-10689 06
 Improved ultrasonic biomedical measuring apparatus
 ARC-10597 872-10695 05
 Automatic method of measuring silicon-controlled-rectifier holding current
 LEWIS-11898 872-10752 02

TEST FACILITIES
 Velocity accelerator for particles
 NPO-11349 872-10082 03
 Standard environmental testing practices
 NPO-11567 872-10101 02
 Pressure-probe assembly for wind tunnels
 ARC-10569 872-10248 03
 Balanced-bellows spirometer
 XAC-01547 872-10279 05
 Right angle mounted cold trap
 GSFC-11323 872-10436 06

TETRABUTYLS
 Initiation of polymerization by tetrabutylammonium p-lithiophenoxide
 ARC-10553 872-10223 04

THALLIUM
 High-temperature, long-life thyatron
 LEWIS-11327 872-10134 01

THEODOLITES
 A simple dead-reckoning navigational system
 M-FS-21165 872-10409 02

THEORETICAL PHYSICS
 Improvements of Zeyded method for calculating flutter of flat panels
 M-FS-20955 872-10399 06

THERAPY
 New reaction tester accurate within 56 microseconds
 MSC-13604 872-10031 05
 Weight simulator
 ARC-10100 872-10046 05

THERMAL CONDUCTIVITY
 Method of determining thermal conductivity in multi-layer insulation systems
 M-FS-20213 872-10154 03
 Sonic limitations and startup problems of heat pipes
 AEC-10036 872-10368 03

THERMAL CONDUCTORS
 An electrohydrodynamic heat pipe
 ARC-10601 872-10251 03
 Overflow sensor for cryogenic-fluid vessels
 NPO-10619 872-10554 03

THERMAL CONTROL COATINGS

High voltage electrical insulation coating for refractory materials
 LEWIS-11479 872-10290 04
 Plasma calcining of pigment particles for thermal control coatings
 M-FS-21267 872-10320 04
 Improved magnesia for thermal control coatings
 ARC-10677 872-10424 04
 Investigation of environmental effects on coatings for thermal control
 M-FS-21932 872-10596 04
 Improved zinc oxide thermal control coatings
 NPO-11139 872-10711 04

THERMAL DIFFUSION

Aluminum foil interconnects for solar cell panels
 ARC-10374 872-10058 08

THERMAL DISSOCIATION

Catalyst for sodium chlorate decomposition
 ARC-10584 872-10305 04

THERMAL ENERGY

Closed-cycle power supply for fluidic control systems
 ARC-10480 872-10163 06
 Differential input preamplifier
 ARC-10489 872-10165 01
 New compression molding process of thermosetting plastic compounds
 LANGLEY-10782 872-10356 08

THERMAL EXPANSION

Hermetic isolation valves
 ARC-10505 872-10013 06
 Universal inverted flexure
 ARC-10345 872-10122 07
 Wide-range dynamic pressure sensor
 ARC-10263 872-10196 03
 High-temperature ceramic-to-ceramic seals
 ARC-10319 872-10199 04
 Thermal analog device reduces machining errors
 AEC-10080 872-102237 08
 Thermally stable structural framework
 ARC-10612 872-10252 08
 Titanium reinforced boron polyimide composite
 M-FS-21916 872-10353 04
 Watertight low-cost electrical connector
 LEWIS-11552 872-10506 01
 Mechanically and thermally stable maser cavity resonator
 HQ-10790 872-10523 01

THERMAL INSULATION

Polyimide foams provide thermal insulation and fire protection
 ARC-10464 872-10300 04
 Deflection resistance indicator
 M-FS-24010 872-10401 04
 Turbopump thermodynamic cooling
 M-FS-21597 872-10408 06
 Overflow sensor for cryogenic-fluid vessels
 NPO-10619 872-10554 03
 Gas-flow restrictor
 NPO-10117 872-10703 03

THERMAL POLLUTION

Effect of thermal discharges on the mass energy balance of Lake Michigan
 AEC-10013 872-10004 03
 Hydraulic modeling of heat dispersion in large lakes
 AEC-10003 872-10039 03

THERMAL PROTECTION

Superior cryogenic insulation developed
M-FS-21560 B72-10187 04
Improved temperature control of liquid cooling garments
MSC-13917 B72-10281 05

THERMAL RADIATION

Program for determination of radiation interchange factors
MSC-17563 B72-10071 09
Performance of silicon solar cell assemblies
NPO-11847 B72-10186 01
Zone radiometer measurements on a model rocket exhaust plume
M-FS-21693 B72-10357 02

THERMAL REACTORS

Carbon monoxide oxidation rates computed for automobile thermal reactor conditions
LEWIS-11638 B72-10137 04

THERMAL RESISTANCE

Feedback control of variable conductance heat pipes
ARC-10460 B72-10169 03
Fire retardant polyisocyanurate foam
ARC-10280 B72-10269 04

THERMAL SHOCK

Isotropic pyrolytic carbons
ARC-10532 B72-10029 04
Optical bonding agents for severe environments
ARC-10459 B72-10063 04
Simple, reproducible methods for thermal shock testing of brittle materials
NUC-11020 B72-10228 06
An improved apochromatic wedge utilizing optical molecular contact bonding
GSFC-11082 B72-10388 03

THERMAL STABILITY

New polyimide polymer has excellent processing characteristics with improved thermo-oxidative and hydrolytic stabilities
LEWIS-11323 B72-10175 04
Development of a polyimide for use as a temperature and solvent resistant sealant
M-FS-21325 B72-10262 04
Driver circuit for inductive loads
ARC-10073 B72-10268 01
Devolatilization of polymer resins
GSFC-11358 B72-10280 04
Thermally resistant polymers for fuel tank sealants
M-FS-21232 B72-10358 04
Floating zone process for drawing small diameter fibers of refractory materials
LEWIS-11380 B72-10491 04
Mechanically and thermally stable master cavity resonator
HQ-10790 B72-10523 01
New type of trifunctional alcohol
NPO-10714 B72-10553 04
Magnetometer uses bismuth-selenide
LEWIS-11632 B72-10629 03
High temperature gallium phosphide rectifiers
LEWIS-11804 B72-10673 01
Ultraviolet and thermally stable polymer compositions
ARC-10592 B72-10709 04

THERMAL STRESSES

Repeatable method of thermal stress fracture test of brittle materials
NUC-11019 B72-10258 06

Analysis of thermal stress and metal movement during welding
M-FS-20984 B72-10333 04
Improved high-temperature gimbal joint
LEWIS-11705 B72-10489 06

THERMIONIC CONVERTERS

Radioisotope thermionic power supply for spacecraft
ARC-10438 B72-10212 03

THERMIONIC POWER GENERATION

Radioisotope thermionic power supply for spacecraft
ARC-10438 B72-10212 03

THERMISTORS

Implanted telemeter for electrocardiogram and body temperature
XAC-08505 B72-10035 05
Simple gas chromatographic system for analysis of microbial respiratory gases
ARC-10403 B72-10207 03

Temperature compensation of light-emitting diodes
ARC-10467 B72-10218 01

An ingestible temperature-transmitter
ARC-10583 B72-10275 01
Microminiature gas chromatographic column
ARC-10594 B72-10306 04

A thermocouple thermode for small animals
ARC-10550 B72-10559 05

THERMOCHEMICAL PROPERTIES

Aerotherm chemical equilibrium (ACE) computer program
LEWIS-11722 B72-10739 09

THERMOCOUPLES

Soldering iron temperature indicator
NPO-11545 B72-10098 02
High voltage protection network
ARC-10197 B72-10119 02
Long-term drift of thermocouples at 1600 K
LEWIS-11471 B72-10176 01
Comparison of catalyst activity
ARC-10493 B72-10201 04
Thermal analog device reduces machining errors
AEC-10080 B72-10237 08
Technique for producing wind-tunnel heat-transfer models
ARC-10658 B72-10349 08
Right angle mounted cold trap
GSFC-11323 B72-10436 06
Thermocouple tape
LEWIS-11072 B72-10515 04
A thermocouple thermode for small animals
ARC-10550 B72-10559 05
A multielement probe for coincident temperature and pressure measurements
LEWIS-11775 B72-10716 06

THERMODYNAMIC PROPERTIES

Flame resistant elastic elastomeric fibers
MSC-13923-4 B72-10005 04
Closed-cycle power supply for fluidic control systems
ARC-10480 B72-10163 06
Performance of silicon solar cell assemblies
NPO-11847 B72-10186 01
Improved thermally conducting electron transfer polymers
GSFC-11304 B72-10291 04

Graphite and boron-reinforced composite materials data summary
M-FS-21691 B72-10294 04

Polyimide foams provide thermal insulation and fire protection
ARC-10464 B72-10300 04

Turbopump thermodynamic cooling
M-FS-21597 B72-10408 06

Phosphonium chloride for thermal storage
ARC-10572 B72-10422 04

Chemical modification of poly(p-phenylene) for use in ablative compositions
ARC-10135 B72-10451 04

Floating zone process for drawing small diameter fibers of refractory materials
LEWIS-11380 B72-10491 04

Laser mass spectrometer
ARC-10687 B72-10571 03

Flexible thermal device
M-FS-21630 B72-10612 04

The weld-brazing metal joining process
LANGLEY-11072 B72-10683 08

THERMODYNAMICS

Vibrating ribbon bolometer: A concept
XAC-10768 B72-10170 03

Variable boundary II heat conduction
LEWIS-10679 B72-10444 09

Solar powered absorption cycle heat pump using phase change materials for energy storage
M-FS-21927 B72-10615 06

Computer program for calculation of complex chemical equilibrium compositions
LEWIS-11714 B72-10718 09

THERMOELECTRIC COOLING

Survey of aircraft electrical power systems
LEWIS-11678 B72-10383 02

Solar powered absorption cycle heat pump using phase change materials for energy storage
M-FS-21927 B72-10615 06

THERMOELECTRIC GENERATORS

Compensation of voltage drops in solid-state switches used with thermoelectric generators
NPO-11388 B72-10138 01

Thermal-powered reciprocating pump
NPO-11417 B72-10723 06

THERMOELECTRICITY

Magnetic-doped alloys with very large Seebeck coefficients
M-FS-21410 B72-10318 04

THERMOMETERS

A reliable liquid helium detector
LEWIS-11487 B72-10145 01

Magnetic-doped alloys with very large Seebeck coefficients
M-FS-21410 B72-10318 04

THERMOPHYSICAL PROPERTIES

Design curve for liquid helium storage vessels
LEWIS-11498 B72-10286 02

Computation of laminar heat transfer from gaseous plasmas in electromagnetic fields
NPO-11725 B72-10707 03

Chrysler improved numerical differencing analyzer for third generation computers
CINDA-3G MSC-11653 B72-10721 09

THERMOPILES

Differential input preamplifier
ARC-10489 B72-10165 01

THERMOREGULATION

Improved temperature control of liquid cooling garments
MSC-13917 B72-10281 05

A thermocouple thermode for small animals
ARC-10550 B72-10559 05

THERMOSETTING RESINS

A new vibration dampening adhesive
MSC-17668 B72-10284 04
New compression molding process of thermosetting plastic compounds
LANGLEY-10782 B72-10356 08

THERMOSTATS

Pulse-width-modulated device for precision temperature control
NPO-11407 B72-10507 02

THICK WALLS

Flexible shielding system for radiation protection
LRL-10028 B72-10500 03

THICKENERS (MATERIALS)

Nonflammable and abrasion resistant coating process for glass fibers
MSC-14024 B72-10445 08

THIN FILMS

Beryllium thin films for resistor applications
ARC-10485 B72-10021 01
Oxygen-layer structure improves lithium-doped silicon solar cells
NPO-11403 B72-10085 03

Manganese bismuth thin film for large capacity digital memories
M-FS-21246 B72-10107 03
Liquid-helium-cooled Michelson interferometer
ARC-10554 B72-10217 03

Fabrication of carbon film composites for high-strength structures
ARC-10613 B72-10423 04

Aluminum nitride insulating films for MOSFET devices
NPO-11859 B72-10425 04

Efficient wire-grid duplexer-polarized for CO₂ lasers
GSFC-11403 B72-10440 03

Amplifier for signal from thin film transducer
LEWIS-11494 B72-10463 01

Unsupported thin film beam splitter
GSFC-10525 B72-10471 02

Universal dc signal conditioner
MSC-17526 B72-10510 02

Thermocouple tape
LEWIS-11072 B72-10515 04

The thin film microwave iris
LANGLEY-10511 B72-10548 02

PTFE films with improved flexibility
NPO-12028 B72-10551 04

Reverse-osmosis membranes by plasma polymerization
ARC-10696 B72-10710 04

THIXOTROPY

A new vibration dampening adhesive
MSC-17668 B72-10284 04

THORIUM OXIDES

Dispersion-strengthened chromium alloy
LEWIS-10982 B72-10378 04

THREADS

Adjustable locking device
M-FS-21650 B72-10459 07

THRESHOLD GATES

Irradiation of MOS-FET devices to provide desired logic functions
GSFC-11061 B72-10719 01

THROATS

Continuous-flow variable-density wind tunnel facilities
NPO-11287 B72-10078 06
Diatomic infrared gasdynamic laser permits selection of wavelengths
ARC-10370 B72-10206 03

THRUST

Fabrication of cooled, graphite-lined structures
LEWIS-11741 B72-10593 08

THRUST BEARINGS

High speed, self-acting, face-contact shaft seal has low leakage and very low wear
LEWIS-11598 B72-10114 07
Turbopump radial and axial rotor support system
M-FS-21495 B72-10264 07

THRUST CHAMBERS

Fabrication of cooled, graphite-lined structures
LEWIS-11741 B72-10593 08

THRUST CONTROL

Adaptive position control loop
ARC-10255 B72-10052 02
Combination throttle and shutoff valve
M-FS-21513 B72-10287 07
Integrated monopropellant thruster
NPO-12004 B72-10502 06

THRUST MEASUREMENT

Wind tunnel buffet load measuring technique
ARC-10495 B72-10022 06

THRUST VECTOR CONTROL

Wide angle solar sensor
NPO-11341 B72-10080 01

THYRATRONS

High-temperature, long-life thyatron
LEWIS-11327 B72-10134 01

THYRISTORS

A hybrid electromechanical solid state switch for ac power control
MSC-14005 B72-10018 02

TIME CONSTANT

Manganese bismuth thin film for large capacity digital memories
M-FS-21246 B72-10107 03

TIME LAG

Errors in hybrid computers
M-FS-21289 B72-10141 02

Real-time pair-feeding of animals
ARC-10302 B72-10298 05

A manually set magnetic wire counter
AEC-10039 B72-10369 01

Current switch has built-in time delay:
A concept
MSC-17324 B72-10453 01

Amplifier for signal from thin film transducer
LEWIS-11494 B72-10463 01

TIME MEASUREMENT

An improved learning decoder
MSC-14070 B72-10573 02

TIME SERIES ANALYSIS

Spectral analysis of multiple time series
M-FS-18859 B72-10614 09

TIME SIGNALS

Technique minimizes the effects of dropouts on telemetry records
NPO-11421 B72-10088 02

Electronic circuit detects left ventricular ejection events in cardiovascular system
LEWIS-11581 B72-10512 05

TIMING DEVICES

High noise immunity one shot
ARC-10137 B72-10047 01

Time-adjusted variable resistor
NPO-11306 B72-10116 01

A rapid, precise, reciprocating-movement color filter system
GSFC-11255 B72-10497 07

TIN

Soldering iron temperature indicator
NPO-11545 B72-10098 02

New twisted intermetallic compound superconductor: A concept
LEWIS-11015 B72-10282 04

TIN COMPOUNDS

Alternating current losses in superconducting coils
M-FS-21129 B72-10360 03

TISSUES (BIOLOGY)

Tissue holder for experimental and Demonstration Surgery
LEWIS-11755 B72-10630 05

TITANIUM

Bonding titanium to Rene 41 alloy
ARC-10311 B72-10041 08

Carbon dioxide concentrator
ARC-10245 B72-10194 05

New twisted intermetallic compound superconductor: A concept
LEWIS-11015 B72-10282 04

Titanium reinforced boron polyimide composite
M-FS-21916 B72-10353 04

TITANIUM ALLOYS

Experimental study of surface cracks
MSC-14032 B72-10019 04

Development of a polyimide for use as a temperature and solvent resistant sealant
M-FS-21325 B72-10262 04

Titanium alloy stress corrosion cracking in presence of dinitrogen tetroxide
M-FS-21113 B72-10321 04

Strain gage attachment by spot welding reduces the fatigue strength of Ti-6Al-4V, Rene 41, and Inconel X
LANGLEY-10930 B72-10339 04

TITANIUM CARBIDES

Floating zone process for drawing small diameter fibers of refractory materials
LEWIS-11380 B72-10491 04

TITANIUM COMPOUNDS

Aluminum foil interconnects for solar cell panels
ARC-10374 B72-10058 08

TOLERANCES (MECHANICS)

A new low-cost method for producing collimating mirrors
LEWIS-11553 B72-10513 08

Machine finishes balls to high degree of roundness
M-FS-21448 B72-10595 08

Comparative performance of double-focus and quadrupole mass spectrometers
NPO-11689 B72-10702 03

TOLUENE

High strength, medium density molded foam
AEC-10053 B72-10235 04

TOOLS

Tool carrier
M-FS-21469 B72-10319 07

- Adjustable locking device
M-FS-21650 B72-10459 07
Vise to hold bones or other irregular objects
ARC-10679 B72-10569 07
Study of hot hardness characteristics of tool steels
LEWIS-11785 B72-10583 04
A concept for universal pliers
KSC-10768 B72-10685 07
- TOPOGRAPHY**
Analog table look-up device identifies unknown terrain
MSC-13816 B72-10033 03
- TOPOLOGY**
Topological solution of bilateral switching networks
ARC-10294 B72-10055 01
- TORNADOES**
Tornado detector and alarm
M-FS-20915 B72-10106 01
- TOROIDS**
Two-stage magnetometer measures weak magnetic fields
AEC-10068 B72-10370 01
- TORQUE**
Adaptive position control loop
ARC-10255 B72-10052 02
Noncontact torque measurement using stroboscopic techniques
MSC-12282 B72-10332 07
A brushless dc spin motor for momentum exchange altitude control
M-FS-14952 B72-10448 02
High torque bellows seal rotary drive
LEWIS-11813 B72-10681 07
- TORQUE MOTORS**
Vortex servovalve for fluidic or electrical input
ARC-10155 B72-10173 07
Two-stage coaxial gas compressor
ARC-10426 B72-10210 06
- TORQUEMETERS**
Noncontact torque measurement using stroboscopic techniques
MSC-12282 B72-10332 07
- TORSION**
Noncontact torque measurement using stroboscopic techniques
MSC-12282 B72-10332 07
- TOUCH**
An improved aesthesiometer
MSC-13609 B72-10032 05
Convuluted fabric for full-pressure gloves
ARC-10529 B72-10215 04
Improved measurement of depth perception
M-FS-14133 B72-10730 05
- TOXIC HAZARDS**
Cavitating Venturi sump
ARC-10504 B72-10012 06
- TOXICITY AND SAFETY HAZARD**
Mercury in the environment
AEC-10048 B72-10233 05
- TRACE CONTAMINANTS**
Trace contaminant adsorption and sorbent regeneration in closed ecological systems
LANGLEY-10681 B72-10328 04
- TRACKING STATIONS**
Deep space network
NPO-11562 B72-10043 01
- TRAJECTORY OPTIMIZATION**
Rapid analysis of electric propulsion missions
ARC-10430 B72-10299 09
- Interplanetary Trajectories, Encke Method (ITEM)
GSFC-11576 B72-10604 09
- TRANSDUCERS**
Wind tunnel buffet load measuring technique
ARC-10495 B72-10022 06
Quick release acoustic sensor holding fixture
MSC-17457 B72-10076 02
High voltage protection network
ARC-10197 B72-10119 02
Fluidic pressure regulators
ARC-10474 B72-10162 06
Wide-range dynamic pressure sensor
ARC-10263 B72-10196 03
Heart catheter cable and connector
ARC-10406 B72-10200 05
Liquid-helium-cooled Michelson interferometer
ARC-10554 B72-10217 03
Ear oximeter-transducer monitors four physiological responses
XAC-05422 B72-10224 05
A closed loop cryogenic environment pressure regulating system
MSC-13880 B72-10390 02
Nonsteady flow-direction measurement
LEWIS-11499 B72-10403 06
Acoustic emission used as weld quality monitor
AEC-10018 B72-10427 08
Very high speed direct-readout, control and recording system
M-FS-20658 B72-10442 02
Amplifier for signal from thin film transducer
LEWIS-11494 B72-10463 01
Pulse-width-modulated device for precision temperature control
NPO-11407 B72-10507 02
A compact battery powered digital thermometer
MSC-14084 B72-10545 02
A system for automatic analysis of blood pressure data for digital computer entry
LEWIS-11751 B72-10632 05
Diode-quad bridge for reactive transducers and FM discriminators
ARC-10364 B72-10691 01
- TRANSFER FUNCTIONS**
Computer method for identification of boiler transfer functions
LEWIS-11808 B72-10582 09
Vibrational transfer functions for complex structures
M-FS-20744 B72-10648 09
- TRANSFORMERS**
Pseudo-saturating power converter
NPO-11368 B72-10042 01
Circuit controls turn-on current
NPO-11339 B72-10079 01
Heart simulator
M-FS-21609 B72-10131 02
Spark ultrasonic transducer
M-FS-21233 B72-10594 04
Waveguide switch protector
NPO-11592 B72-10705 01
Design of microstrip components by computer
LANGLEY-11210 B72-10741 01
- TRANSIENT LOADS**
Water impact loads
M-FS-21955 B72-10621 09
- TRANSIENT PRESSURES**
Propellant feed systems transients
MSC-17848 B72-10677 06
- TRANSIENT RESPONSE**
Program for the transient response of ablating axisymmetric bodies including the effects of shape change
LANGLEY-11049 B72-10068 09
Vibrational transfer functions for complex structures
M-FS-20744 B72-10648 09
- TRANSISTOR CIRCUITS**
Gate protective device for insulated gate field-effect transistors
M-FS-21626 B72-10149 01
- TRANSISTORS**
Analog table look-up device identifies unknown terrain
MSC-13816 B72-10033 03
Pseudo-saturating power converter
NPO-11368 B72-10042 01
Voltage-tunable parallel-T filter for remote operation
NPO-11165 B72-10077 01
Precision voltage regulator
NPO-11502 B72-10092 01
Time-lapse camera for microscopy
ARC-10423 B72-10125 05
Driver circuit for inductive loads
ARC-10073 B72-10268 01
An ingestible temperature-transmitter
ARC-10583 B72-10275 01
Electronic integrator for gyro rate output voltages
NPO-11499 B72-10555 01
A simplified, compact static shift register
HQ-10723 B72-10591 02
- TRANSMISSION**
High torque bellows seal rotary drive
LEWIS-11813 B72-10681 07
- TRANSMISSION CIRCUITS**
Computer program analyzes and monitors electrical power systems (POSIMO)
GSFC-11505 B72-10610 09
- TRANSMISSION LINES**
Arc protection system for high-power RF amplifiers
NPO-11560 B72-10099 02
- TRANSMITTANCE**
Unsupported thin film beam splitter
GSFC-10525 B72-10471 02
Loudness (annoyance), prediction procedure for steady sounds
LEWIS-11761 B72-10579 05
Improved transmittance measurement with a magnesium oxide coated integrating sphere
LEWIS-11840 B72-10717 04
- TRANSMITTERS**
Implanted telemeter for electrocardiogram and body temperature
XAC-08505 B72-10035 05
Narrowband, crystal-controlled biomedical telemetry system
ARC-10708 B72-10255 01
An ingestible temperature-transmitter
ARC-10583 B72-10275 01
- TRANSONIC SPEED**
Transonic divider for gas chromatograph effluents
NPO-11479 B72-10706 03
- TRANSPARENCY**
Angular velocity and acceleration meter
LEWIS-11466 B72-10183 06

TRANSPORT VEHICLES

- Positive fast sealing union connections
LEWIS-11290 B72-10133 06
- Tandem steerable running gear
M-FS-22012 B72-10499 07

TRANSPORTATION

- Prolate spheroidal slosh model for fluid motion
MSC-13864 B72-10182 09

TRANSVERSE WAVES

- Diatomic infrared gasdynamic laser permits selection of wavelengths
ARC-10370 B72-10206 03

TRAYS

- Removal of filler material from large high energy formed parts
M-FS-18326 B72-10104 06

TREES (MATHEMATICS)

- High speed sequential decoder
ARC-10657 B72-10568 09

TRIANGLES

- Isogrid structure
M-FS-21567 B72-10323 06

TRIANGULATION

- Automatic lightning location system
AEC-10077 B72-10372 02

TRIGGER CIRCUITS

- Pulsed high-power arc heater with improved cathode and triggering mechanism
ARC-10173 B72-10048 03

TRIGONOMETRIC FUNCTIONS

- Programmed physiological infusion system
ARC-10447 B72-10126 05
- Sensitive holographic detection of small aerodynamic perturbations
ARC-10422 B72-10209 03
- Indefinite integrals of products of some exponential and trigonometric functions
LEWIS-11493 B72-10225 09
- Sunspot analysis and prediction
M-FS-21724 B72-10317 03

TRIMERS

- New type of trifunctional alcohol
NPO-10714 B72-10553 04

TRITIUM

- Direct analysis of hydrogen/deuterium mixtures: A concept
NPO-11322 B72-10244 03

TRUNCATION ERRORS

- Errors in hybrid computers
M-FS-21289 B72-10141 02

TUNGSTEN

- Particle detection by a light-scattering technique
ARC-10384 B72-10160 03
- Solar sensor with autocollimator
ARC-10148 B72-10192 03
- Nonmetallic impurities improve mechanical properties of vapor-deposited tungsten
LEWIS-10800 B72-10454 04
- Spark ultrasonic transducer
M-FS-21233 B72-10594 04
- Tungsten-reinforced tantalum
LEWIS-11750 B72-10684 04
- Improved transmittance measurement with a magnesium oxide coated integrating sphere
LEWIS-11840 B72-10717 04

TUNGSTEN ALLOYS

- Common bearing material has highest fatigue life at moderate temperature
LEWIS-11592 B72-10382 04

- Advanced alloy design technique: High temperature cobalt base superalloy
LEWIS-10436 B72-10514 04
- High-intensity source of extreme ultraviolet
HQ-10754 B72-10528 03

TUNING

- Microresonator for damping flow oscillations
M-FS-18401 B72-10105 06
- A voltage-tunable three-terminal Gunn device
HQ-10783 B72-10518 01
- Acousto-optic filter for electronic laser tuning
HQ-10715 B72-10520 03
- Mechanically and thermally stable maser cavity resonator
HQ-10790 B72-10523 01

TURBIDITY

- Particle detection by a light-scattering technique
ARC-10384 B72-10160 03

TURBINE ENGINES

- Investigations of a turbulent jet in a crossflow
LEWIS-11680 B72-10437 06
- High-speed, self-acting shaft seal (circumferential type)
LEWIS-11274 B72-10447 07

TURBINE INSTRUMENTS

- Small turbine-type flowmeters for liquid hydrogen
LEWIS-11535 B72-10331 06
- Use of small turbine-type flowmeters to measure flow in large pipes
LEWIS-11851 B72-10631 06

TURBINE PUMPS

- Turbopump radial and axial rotor support system
M-FS-21495 B72-10264 07
- Turbopump thermodynamic cooling
M-FS-21597 B72-10408 06
- Design criteria monograph for high-load high-speed rolling-contact bearings
LEWIS-11823 B72-10627 04
- Design criteria monograph on turbopump inducers
LEWIS-11824 B72-10635 08
- Freon 21 bearing lubrication and coolant system
HQ-10302 B72-10651 06

TURBINE WHEELS

- Simple turbine balancing test apparatus
LEWIS-11658 B72-10377 07
- Slot configuration for axial-flow turbomachinery blades
LEWIS-11572 B72-10484 07

TURBINES

- Boiler for generating high quality vapor
LEWIS-11345 B72-10135 06

TURBOMACHINE BLADES

- FORTAN program for computing coordinates of circular-arc, single and tandem, turbine and compressor, blade sections on a plane
LEWIS-11237 B72-10405 09
- Slot configuration for axial-flow turbomachinery blades
LEWIS-11572 B72-10484 07
- Computer program for quasi-three-dimensional calculation of surface velocities and choking flow for turbomachine blade rows
LEWIS-11635 B72-10586 09

TURBOMACHINERY

- Program for calculating laminar and turbulent boundary layers in arbitrary pressure gradients
LEWIS-11097 B72-10111 09
- Slot configuration for axial-flow turbomachinery blades
LEWIS-11572 B72-10484 07
- Design criteria monograph on turbopump inducers
LEWIS-11824 B72-10635 08

TURBULENT BOUNDARY LAYER

- Program for calculating laminar and turbulent boundary layers in arbitrary pressure gradients
LEWIS-11097 B72-10111 09
- Response of a panel structure to reverberant acoustic excitation
M-FS-21774 B72-10603 06

TURBULENT FLOW

- Design of two-dimensional sharp-edged-throat supersonic nozzle with boundary-layer correction
LEWIS-11636 B72-10070 09
- Program for calculating laminar and turbulent boundary layers in arbitrary pressure gradients
LEWIS-11097 B72-10111 09
- Cryogenic gel flow viscometer
ARC-10523 B72-10180 03
- Cavitation data for hydraulic equipment
LEWIS-11642 B72-10384 07
- Investigations of a turbulent jet in a crossflow
LEWIS-11680 B72-10437 06
- Heat transfer correlations for kerosene fuels and mixtures and physical properties for Jet A fuel
LEWIS-11652 B72-10742 04

TURBULENT MIXING

- Turbulent mixing film cooling correlation
LEWIS-11417 B72-10326 07

TWISTING

- New twisted intermetallic compound superconductor: A concept
LEWIS-11015 B72-10282 04

TYPEWRITERS

- No-err typing aids
M-FS-15218 B72-10498 07

U

ULLAGE

- Main tank injection pressurization program
LEWIS-11368 B72-10069 09
- Thermal control for storage of cryogenic propellants in a common-bulkhead tank: A concept
ARC-10558 B72-10276 03
- Safe transport of diborane in a dual refrigerant system: A concept
ARC-10559 B72-10277 03

ULTRAHIGH FREQUENCIES

- Deep space network
NPO-11562 B72-10043 01
- Heart catheter cable and connector
ARC-10406 B72-10200 05

ULTRASONIC AGITATION

- Spark ultrasonic transducer
M-FS-21233 B72-10594 04

ULTRASONIC RADIATION

- Laser beam deflection control: A concept
MSC-13814 B72-10411 02
- A system for early warning of bearing failure
M-FS-21877 B72-10494 06
- Improved ultrasonic biomedical measuring apparatus
ARC-10597 B72-10695 05
- ULTRASONIC TESTS**
Nondestructive-test standards for evaluation of fiber-reinforced composites
M-FS-21288 B72-10157 04
- ULTRASONIC WAVE TRANSDUCERS**
Isotropic pyrolytic carbons
ARC-10532 B72-10029 04
- A sonic transducer to detect fluid leaks
KSC-10704 B72-10376 01
- Ultrasonic bone densitometer
M-FS-20994 B72-10450 05
- Spark ultrasonic transducer
M-FS-21233 B72-10594 04
- Improved ultrasonic biomedical measuring apparatus
ARC-10597 B72-10695 05
- ULTRASONIC WELDING**
Aluminum foil interconnects for solar cell panels
ARC-10374 B72-10058 08
- ULTRAVIOLET ABSORPTION**
A transmitting and reflecting diffuser for ultraviolet light
LANGLEY-10385 B72-10611 03
- ULTRAVIOLET FILTERS**
Flexible, low-cost silicon solar cell arrays
LEWIS-11069 B72-10177 02
- ULTRAVIOLET PHOTOMETRY**
Rotary shutter mechanism contains optical elements
GSFC-11244 B72-10387 03
- ULTRAVIOLET RADIATION**
Increasing the response of PIN photodiodes to the ultraviolet
ARC-10274 B72-10053 03
- Solar sensor with autocollimator
ARC-10148 B72-10192 03
- Plasma calcining of pigment particles for thermal control coatings
M-FS-21267 B72-10320 04
- Study of in-situ degradation of thermal control surfaces
M-FS-20892 B72-10336 04
- High-intensity source of extreme ultraviolet
HQ-10754 B72-10528 03
- Sputter etching of hemispherical bearings
HQ-10712 B72-10534 08
- Helium window for shock-tube monochromators
NPO-11852 B72-10556 03
- A transmitting and reflecting diffuser for ultraviolet light
LANGLEY-10385 B72-10611 03
- Thin-film ultraviolet detector and spectrometer
NPO-11432 B72-10701 03
- Ultraviolet and thermally stable polymer compositions
ARC-10592 B72-10709 04
- ULTRAVIOLET SPECTRA**
Interferometric rotation sensor
ARC-10278 B72-10274 03

UNIFIED S BAND

- Deep space network
NPO-11562 B72-10043 01
- UNIONS (CONNECTORS)**
Positive fast sealing union connections
LEWIS-11290 B72-10133 06
- UNIVAC 1108 COMPUTER**
Structural design and stress analysis program for advanced composite filament-wound axisymmetric pressure vessels (COMTANK)
NPO-11943 B72-10073 09
- Response of a panel structure to reverberant acoustic excitation
M-FS-21774 B72-10603 06
- Method for nonlinear exponential regression analysis
M-FS-21965 B72-10622 09
- Chrysler improved numerical differencing analyzer for third generation computers CINDA-3G
MSC-11653 B72-10721 09
- Analysis of circuits including magnetic cores (MTRAC)
NPO-11494 B72-10724 02
- UNMANNED SPACECRAFT**
Radioisotope thermionic power supply for spacecraft
ARC-10438 B72-10212 03
- Planetary rock corer and drill concepts
NPO-11416 B72-10398 07
- UPSTREAM**
Pressure sensitive gas flow meter
ARC-10219 B72-10049 06
- URBAN RESEARCH**
Urban air pollution dispersion model
AEC-10004 B72-10003 03
- UREAS**
Water purification by reverse osmosis using heterocyclic polymer membranes
LANGLEY-10514 B72-10230 04
- Purification of contaminated water by filtration through porous glass
ARC-10655 B72-10412 04
- Reverse-osmosis membranes by plasma polymerization
ARC-10696 B72-10710 04
- URETHANES**
Flame resistant elastic elastomeric fibers
MSC-13923-4 B72-10005 04
- UTILITIES**
Effect of thermal discharges on the mass energy balance of Lake Michigan
AEC-10013 B72-10004 03
- A sonic transducer to detect fluid leaks
KSC-10704 B72-10376 01
- V**
- VACCINES**
Covalent bonding of antibodies of polystyrene latex beads: A concept
MSC-13906 B72-10006 05
- VACUUM**
Aluminum foil interconnects for solar cell panels
ARC-10374 B72-10058 08
- Optical bonding agents for severe environments
ARC-10459 B72-10063 04
- Long-term drift of thermocouples at 1600 K
LEWIS-11471 B72-10176 01

- Watertight low-cost electrical connector
LEWIS-11552 B72-10506 01
- VACUUM APPARATUS**
Right angle mounted cold trap
GSFC-11323 B72-10436 06
- Constant tension device for gravity simulation
M-FS-21618 B72-10466 06
- Efficient baffle prevents oil backstreaming in diffusion pumps
LRL-10025 B72-10475 07
- Improved method for reclaiming vacuum diffusion pump oil
LEWIS-11647 B72-10511 04
- Film holder for curved vacuum platen
MSC-14120 B72-10542 07
- Tissue holder for experimental and Demonstration Surgery
LEWIS-11755 B72-10630 05
- VACUUM CHAMBERS**
Improved method for producing metal-reinforced ceramics
AEC-10070 B72-10234 04
- Laboratory leak tester provides high sensitivity
AEC-10042 B72-10240 03
- Polymeric coatings using electronic excitation
HQ-10698 B72-10257 04
- Portable electron beam weld chamber
MSC-17738 B72-10338 06
- Right angle mounted cold trap
GSFC-11323 B72-10436 06
- VACUUM FURNACES**
An improved gas extraction furnace
MSC-14138 B72-10544 04
- VACUUM PUMPS**
A cryopump for cooling objects at a distance
LRL-10031 B72-10314 03
- Right angle mounted cold trap
GSFC-11323 B72-10436 06
- Efficient baffle prevents oil backstreaming in diffusion pumps
LRL-10025 B72-10475 07
- VACUUM SYSTEMS**
Preventing oil migration in vacuum systems
GSFC-11253 B72-10129 04
- Glass technology involved in the manufacture of magnetometer components
GSFC-11283 B72-10132 03
- Simple, reproducible methods for thermal shock testing of brittle materials
NUC-11020 B72-10228 06
- Baffle to confine glow discharge in ion pump
M-FS-21575 B72-10324 03
- New compression molding process of thermosetting plastic compounds
LANGLEY-10782 B72-10356 08
- VACUUM TUBES**
Laser frequency modulation with electron plasma
AEC-10079 B72-10373 03
- VADOSE WATER**
Phosphorus in land-water systems
AEC-10049 B72-10429 05
- VALVES**
Improved elastomer for use with oxygen difluoride
ARC-10528 B72-10027 04
- Pressure sensitive gas flow meter
ARC-10219 B72-10049 06
- Hydraulic valve lifter remover
M-FS-21377 B72-10110 07

- Preventing oil migration in vacuum systems
GSFC-11253 B72-10129 04
- Fluidic pressure regulators
ARC-10474 B72-10162 06
- Vortex servovalve for fluidic or electrical input
ARC-10155 B72-10173 07
- A piezoelectrically actuated ball valve
ARC-10338 B72-10204 06
- Two-stage coaxial gas compressor
ARC-10426 B72-10210 06
- Counter lung
ARC-10248 B72-10219 05
- Stem clutch for motor driven valve
LRL-10032 B72-10345 07
- Low cost anti-galling bushings
LEWIS-11724 B72-10359 08
- A valve concept for remote fluid flow control
M-FS-16097 B72-10400 07
- Controlled flow assembly
M-FS-21716 B72-10404 07
- Combination pressure regulator and safety valve: A concept
MSC-14088 B72-10446 06
- Self-aligning, low-pressure sealing poppet valve
MSC-17745 B72-10538 07
- Fill and vent quick disconnect
M-FS-21822 B72-10645 07
- Propellant feed systems transients
MSC-17848 B72-10677 06
- A shut-off valve for flexible tubing
M-FS-21731 B72-10687 07
- Concentric-seating poppet
NPO-11658 B72-10704 06
- VANADIUM**
Bonding titanium to Rene 41 alloy
ARC-10311 B72-10041 08
- VANADIUM ALLOYS**
Common bearing material has highest fatigue life at moderate temperature
LEWIS-11592 B72-10382 04
- VAPOR DEPOSITION**
Promotion of dropwise condensation of ethyl alcohol, methyl alcohol, and acetone by polytetrafluoroethylene
LANGLEY-10940 B72-10115 04
- Advanced protective coating for superalloys
LEWIS-11473 B72-10150 04
- New twisted intermetallic compound superconductor: A concept
LEWIS-11015 B72-10282 04
- Dispersion-strengthened chromium alloy
LEWIS-10982 B72-10378 04
- Nonmetallic impurities improve mechanical properties of vapor-deposited tungsten
LEWIS-10800 B72-10454 04
- Tungsten-reinforced tantalum
LEWIS-11750 B72-10684 04
- VAPOR PHASES**
Improved elastomer for use with oxygen difluoride
ARC-10528 B72-10027 04
- Boiler for generating high quality vapor
LEWIS-11345 B72-10135 06
- Feedback control of variable conductance heat pipes
ARC-10460 B72-10169 03
- Liquid methane gelled with methanol and water reduces rate of nitrogen absorption
LEWIS-11574 B72-10330 06
- Temperature control of a cryogenic bath
HQ-10788 B72-10532 03
- VAPOR PRESSURE**
Halogenation of microcapsule walls
ARC-10410 B72-10161 04
- Improved synthesis of intermetal compounds
HQ-10690 B72-10172 04
- Restartable heat pipe
ARC-10198 B72-10188 03
- Safe transport of diborane in a dual refrigerant system: A concept
ARC-10559 B72-10277 03
- VAPORIZING**
Advances in induction-heated plasma torch technology
LEWIS-11354 B72-10151 03
- Closed-cycle power supply for fluidic control systems
ARC-10480 B72-10163 06
- Devolatilization of polymer resins
GSFC-11358 B72-10280 04
- Multipurpose top for liquid helium Dewar
ARC-10533 B72-10302 03
- Laser mass spectrometer
ARC-10687 B72-10571 03
- Thermal-powered reciprocating pump
NPO-11417 B72-10723 06
- VAPORS**
Promotion of dropwise condensation of ethyl alcohol, methyl alcohol, and acetone by polytetrafluoroethylene
LANGLEY-10940 B72-10115 04
- Restartable heat pipe
ARC-10198 B72-10188 03
- Sonic limitations and startup problems of heat pipes
AEC-10036 B72-10368 03
- Efficient baffle prevents oil backstreaming in diffusion pumps
LRL-10025 B72-10475 07
- Overflow sensor for cryogenic-fluid vessels
NPO-10619 B72-10554 03
- Computer method for identification of boiler transfer functions
LEWIS-11808 B72-10582 09
- Numerical solution of potential flow problems in terms of flux components
M-FS-21751 B72-10667 09
- VARIATIONS**
Atmospheric density variations related to internal gravity waves
M-FS-21637 B72-10143 03
- Optimization technique for problems with an inequality constraint
ARC-10522 B72-10222 09
- A concept for universal pliers
KSC-10768 B72-10685 07
- VARNISHES**
New polyimide polymer has excellent processing characteristics with improved thermo-oxidative and hydrolytic stabilities
LEWIS-11323 B72-10175 04
- VECTORCARDIOGRAPHY**
Compression and R-wave detection of ECG/VCG data
MSC-14126 B72-10391 05
- VELOCITY**
Velocity accelerator for particles
NPO-11349 B72-10082 03
- Inertial reference unit
NPO-11518 B72-10094 02
- Speed enhancement of complementary MOS devices
ARC-10387 B72-10184 01
- Improved high-performance shock tube
NPO-11885 B72-10242 03
- High efficiency collector for microwave tubes
LEWIS-11192 B72-10259 03
- Composite mobile system for holographic nondestructive testing
M-FS-21704 B72-10351 03
- Frequency-wavelength calculator with table of dielectric properties
GSFC-11200 B72-10472 03
- Analysis and computer programs to calculate acoustic wave properties of baffled chambers
LEWIS-11529 B72-10577 09
- Computer program for quasi-three-dimensional calculation of surface velocities and choking flow for turbomachine blade rows
LEWIS-11635 B72-10586 09
- Propellant feed systems transients
MSC-17848 B72-10677 06
- VELOCITY MEASUREMENT**
Optical enhancement of sensitivity in laser Doppler velocity systems
ARC-10653 B72-10310 03
- Use of small turbine-type flowmeters to measure flow in large pipes
LEWIS-11851 B72-10631 06
- VENTING**
Cavitating Venturi sump
ARC-10504 B72-10012 06
- Thermal control for storage of cryogenic propellants in a common-bulkhead tank: A concept
ARC-10558 B72-10276 03
- Safe transport of diborane in a dual refrigerant system: A concept
ARC-10559 B72-10277 03
- An economical vent cover
M-FS-20692 B72-10348 07
- Free-radical solution-polymerization of trifluoronitrosomethane with tetrafluoroethylene
ARC-10567 B72-10419 04
- VENTS**
Counter lung
ARC-10248 B72-10219 05
- An economical vent cover
M-FS-20692 B72-10348 07
- Remote control flare stack igniter for combustible gases
M-FS-21675 B72-10352 07
- VENTURI TUBES**
Cavitating Venturi sump
ARC-10504 B72-10012 06
- VERTICAL LANDING**
Optimized braking of landing vehicles with atmospheric drag
NPO-11402 B72-10084 06
- VERTICAL TAKEOFF AIRCRAFT**
Bonding titanium to Rene 41 alloy
ARC-10311 B72-10041 08
- VERY HIGH FREQUENCIES**
Automatic lightning location system
AEC-10077 B72-10372 02
- VERY HIGH FREQUENCY RADIO EQUIPMENT**
Radio direction finder
NPO-11573 B72-10508 02

VHF OMNIRANGE NAVIGATION

- Radio direction finder
NPO-11573 872-10508 02
- VIBRATION**
Isotropic pyrolytic carbons
ARC-10532 872-10029 04
A new vibration dampening adhesive
MSC-17668 872-10284 04
Composite mobile system for holographic nondestructive testing
M-FS-21704 872-10351 03
Simple turbine balancing test apparatus
LEWIS-11658 872-10377 07
Prediction of flow-induced failures of braided flexible hoses and bellows
M-FS-19004 872-10407 06
Multiple reaction mass and isolation system
M-FS-24119 872-10441 06
Effects of nonuniform swash-plate stiffness on coupled blade-control system dynamics and stability
LANGLEY-11068 872-10749 06
- VIBRATION EFFECTS**
Microresonator for damping flow oscillations
M-FS-18401 872-10105 06
Analytical failure determination of flow-induced fatigue in bellows
M-FS-18178 872-10488 06
- VIBRATION ISOLATORS**
Flexible thermal device
M-FS-21630 872-10612 04
- VIBRATION MEASUREMENT**
Spectral analysis of multiple time series
M-FS-18859 872-10614 09
Vibrational transfer functions for complex structures
M-FS-20744 872-10648 09
- VIBRATION METERS**
Improved system for measuring speed of rotating machinery
ARC-10413 872-10179 07
- VIBRATION MODE**
Diatomic infrared gasdynamic laser permits selection of wavelengths
ARC-10370 872-10206 03
- VIBRATION TESTS**
Optical bonding agents for severe environments
ARC-10459 872-10063 04
Control of acceleration in sine/random vibration tests
NPO-11482 872-10091 02
Standard environmental testing practices
NPO-11567 872-10101 02
- VIDEO COMMUNICATION**
Scanning technique for tracking small eye-movements
ARC-10488 872-10220 05
- VIDEO DATA**
A study of the power spectral density of an FM signal
M-FS-21070 872-10361 02
- VIDEO EQUIPMENT**
Video information system
M-FS-21711 872-10267 09
Optical device for producing color line scan display from monochrome oscilloscope traces
LANGLEY-10896 872-10375 03

VIDICONS

- Nematic liquid crystals for optical shutters: A concept
NPO-11367 872-10083 03
Projections of scan patterns on human retina
ARC-10181 872-10193 05
Solid state television camera has no imaging tube
M-FS-21553 872-10254 02
Video information system
M-FS-21711 872-10267 09
Vidicon storage tube electrical input/output
MSC-14053 872-10285 02
Neutron radiographic viewing system
M-FS-22024 872-10468 02

VISCOMETERS

- Cryogenic gel flow viscometer
ARC-10523 872-10180 03
Parallel-plate viscometer
NPO-11387 872-10700 03

VISCOPLASTICITY

- New compression molding process of thermosetting plastic compounds
LANGLEY-10782 872-10356 08

VISCOSITY

- Laser beam deflection control: A concept
MSC-13814 872-10411 02

VISCIOUS FLOW

- Cryogenic gel flow viscometer
ARC-10523 872-10180 03

VISCOS FLUIDS

- Closed-cycle power supply for fluidic control systems
ARC-10480 872-10163 06

VISUAL DISCRIMINATION

- Improved measurement of depth perception
M-FS-14133 872-10730 05

VISUAL FIELDS

- Visual sensitivity tester
ARC-10329 872-10203 05

VISUAL OBSERVATION

- Improved optical filters for automated visual inspection
HQ-10720 872-10521 03

VISUAL PERCEPTION

- Visual sensitivity tester
ARC-10329 872-10203 05

VISUAL STIMULI

- New reaction tester accurate within 56 microseconds
MSC-13604 872-10031 05
Visual sensitivity tester
ARC-10329 872-10203 05

VOICE COMMUNICATION

- Frequency-to-amplitude converter: A concept
MSC-12395 872-10729 01

VOICE DATA PROCESSING

- Speech therapy and voice recognition instrument
HQ-10628 872-10652 05

VOLATILITY

- Devolatilization of polymer resins
GSFC-11358 872-10280 04

VOLT-AMPERE CHARACTERISTICS

- Coaxial inverted geometry epitaxial transistor
ARC-10330 872-10056 01
Performance of silicon solar cell assemblies
NPO-11847 872-10186 01

VOLTAGE AMPLIFIERS

- Improved device measures performance of batteries under load
ARC-10252 872-10051 02
Precision voltage regulator
NPO-11502 872-10092 01

VOLTAGE GENERATORS

- Lightweight, broad-band spectrum analyzer
ARC-10405 872-10060 01

VOLTAGE REGULATORS

- Precision voltage regulator
NPO-11502 872-10092 01

VOLTMETERS

- Improved device measures performance of batteries under load
ARC-10252 872-10051 02
A continuous physiological data collector
M-FS-20835 872-10402 05
Electromagnetic rheometer
ARC-10525 872-10416 04

VORTEX GENERATORS

- Integrated monopropellant thruster
NPO-12004 872-10502 06

VORTICES

- Investigations of a turbulent jet in a crossflow
LEWIS-11680 872-10437 06

W

WAFERS

- Lightweight, broad-band spectrum analyzer
ARC-10405 872-10060 01
Inorganic glass ceramic slip rings
M-FS-20711 872-10313 04

WALL PRESSURE

- Airflow distribution control for improved turbine engine performance
LEWIS-11593 872-10178 07

WALL TEMPERATURE

- Main tank injection pressurization program
LEWIS-11368 872-10069 09
Turbulent mixing film cooling correlation
LEWIS-11417 872-10326 07
Fabrication of cooled, graphite-lined structures
LEWIS-11741 872-10593 08

WALLS

- A method of eliminating hydrogen maser wall shift
HQ-10663 872-10670 03

WARNING SYSTEMS

- Peak acceleration limiter
NPO-10556 872-10007 01
Tornado detector and alarm
M-FS-20915 872-10106 01
A closed loop cryogenic environment pressure regulating system
MSC-13880 872-10390 02
Airlock caution and warning system
M-FS-21576 872-10467 02
A system for early warning of bearing failure
M-FS-21877 872-10494 06
An absentee monitoring device
KSC-10668 872-10578 01

WASHERS (SPACERS)

- Piezoelectric actuator uses sequentially-excited multiple elements: A concept
NPO-11527 872-10096 01

SUBJECT INDEX

WASTE DISPOSAL

Metered oxygen supply aids treatment of domestic sewage
ARC-10024 872-10557 05

WATER

Effect of thermal discharges on the mass energy balance of Lake Michigan
AEC-10013 872-10004 03

Restartable heat pipe
ARC-10198 872-10188 03

Noncontaminating technique for making holes in existing process systems
LEWIS-11595 872-10385 07

Solid amine compounds as sorbents for carbon dioxide: A concept
ARC-10571 872-10421 04

Flexible shielding system for radiation protection
LRL-10028 872-10500 03

Carbon dioxide concentration indicator
HQ-10582 872-10526 05

Preparation of stable colloidal dispersions in fluorinated liquids
HQ-10580 872-10529 04

WATER FLOW

Automatic water inventory, collecting, and dispensing unit
LANGLEY-11071 872-10663 06

Experimental study of flow distribution with circumferential manifolds
LEWIS-11649 872-10738 06

Electro-chemical grinding
LANGLEY-10801 872-10744 08

WATER LANDING

Water impact loads
M-FS-21955 872-10621 09

WATER LOSS

Method to determine vented electrochemical cell quality
GSFC-11216 872-10396 04

WATER POLLUTION

Effect of thermal discharges on the mass energy balance of Lake Michigan
AEC-10013 872-10004 03

A method of isolating organic compounds present in water
AEC-10010 872-10044 04

Water purification by reverse osmosis using heterocyclic polymer membranes
LANGLEY-10514 872-10230 04

Assessment of water pollution by airborne measurement of chlorophyll
ARC-10648 872-10566 04

Technical management techniques for identification and control of industrial safety and pollution hazards
M-FS-21883 872-10588 05

WATER PRESSURE

Weight simulator
ARC-10100 872-10046 05

WATER RECLAMATION

Hydrogen eliminator
ARC-10408 872-10208 03

WATER TEMPERATURE

Effect of thermal discharges on the mass energy balance of Lake Michigan
AEC-10013 872-10004 03

WATER TREATMENT

A method of isolating organic compounds present in water
AEC-10010 872-10044 04

Water purification by reverse osmosis using heterocyclic polymer membranes
LANGLEY-10514 872-10230 04

Purification of contaminated water by filtration through porous glass
ARC-10655 872-10412 04

WATER VAPOR

Boiler for generating high quality vapor
LEWIS-11345 872-10135 06

Cell for electrolysis of water vapor
ARC-10521 872-10166 03

Solid amine compounds as sorbents for carbon dioxide: A concept
ARC-10571 872-10421 04

WATERPROOFING

Watertight low-cost electrical connector
LEWIS-11552 872-10506 01

WATTMETERS

Wideband wattmeter for instant measurement of real power
LEWIS-11698 872-10737 01

WAVE DIFFRACTION

Acousto-optic filter for electronic laser tuning
HQ-10715 872-10520 03

WAVE EQUATIONS

Analysis and computer programs to calculate acoustic wave properties of baffled chambers
LEWIS-11529 872-10577 09

WAVE PROPAGATION

Improvements of Zeydel method for calculating flutter of flat panels
M-FS-20955 872-10399 06

WAVE REFLECTION

Redirecting electromagnetic beams through wide angles
ARC-10602 872-10307 03

WAVEFORMS

Heart simulator
M-FS-21609 872-10131 02

Ear oximeter-transducer monitors four physiological responses
XAC-05422 872-10224 05

Electronic switching circuit uses complementary non-linear components
AEC-10060 872-10236 01

A sonic transducer to detect fluid leaks
KSC-10704 872-10376 01

Roll function in a flight simulator
ARC-10557 872-10417 02

Electronic circuit detects left ventricular ejection events in cardiovascular system
LEWIS-11581 872-10512 05

Oscillation of laser-beam intensity as observed with beam splitters
ARC-10694 872-10572 03

Speech therapy and voice recognition instrument
HQ-10628 872-10652 05

Simulated breath waveform control
HQ-10779 872-10661 05

Wideband wattmeter for instant measurement of real power
LEWIS-11698 872-10737 01

Acoustical analysis system
GSFC-11087 872-10751 02

Automatic method of measuring silicon-controlled-rectifier holding current
LEWIS-11898 872-10752 02

WAVEGUIDE WINDOWS

The thin film microwave iris
LANGLEY-10511 872-10548 02

WAVEGUIDES

Waveguide switch protector
NPO-11592 872-10705 01

WAVELENGTHS

Projections of scan patterns on human retina
ARC-10181 872-10193 05

WEIGHT MEASUREMENT

Nondispersive infrared analyzer for specific gases in complex mixtures
ARC-10308 872-10198 03

A dual-beam actinic light source for photosynthesis research
ARC-10351 872-10205 05

Diatomic infrared gasdynamic laser permits selection of wavelengths
ARC-10370 872-10206 03

A compact spectroradiometer for solar simulator measurements
HQ-10683 872-10327 03

Frequency-wavelength calculator with table of dielectric properties
GSFC-11200 872-10472 03

Interferometric measurement of the velocity of radiating particles
HQ-10371 872-10495 03

Measurement of electron density and temperature in plasmas
ARC-10598 872-10563 03

Ultraviolet and thermally stable polymer compositions
ARC-10592 872-10709 04

WAXES

Miniature intermittent contact switch
ARC-10450 872-10271 01

WEAR

A sonic transducer to detect fluid leaks
KSC-10704 872-10376 01

WEAR TESTS

Polyimide bonded graphite fluoride: A new long life solid lubricant coating
LEWIS-11864 872-10628 04

WEATHER FORECASTING

Tornado detector and alarm
M-FS-20915 872-10106 01

Wide-range dynamic pressure sensor
ARC-10263 872-10196 03

WEAVING

Nonflammable and abrasion resistant coating process for glass fibers
MSC-14024 872-10445 08

WEDGES

An improved apochromatic wedge utilizing optical molecular contact bonding
GSFC-11082 872-10388 03

WEIGHT

Speed enhancement of complementary MOS devices
ARC-10387 872-10184 01

WEIGHT (MASS)

High-volume pressure relief valve
KSC-10707 872-10536 07

Comparative performance of double-focus and quadrupole mass spectrometers
NPO-11689 872-10702 03

Optimization of fluid line sizes with pumping power penalty IBM-360 computer program
MSC-17930 872-10722 06

WEIGHT INDICATORS

Quartz crystal microbalance use in biological studies
NPO-11346 872-10243 05

Remote weighing device
M-FS-21556 872-10325 07

Method to determine vented electrochemical cell quality
GSFC-11216 872-10396 04

WEIGHT MEASUREMENT

Remote weighing device
M-FS-21556 872-10325 06

WEIGHTLESSNESS

- Weight simulator
ARC-10100 B72-10046 05
Time-lapse camera for microscopy
ARC-10423 B72-10125 05
Prolate spheroidal slosh model for fluid motion
MSC-13864 B72-10182 09
Intravenous fluid flow meter concept for zero gravity environment
MSC-14123 B72-10461 05
Restraint and locomotion aid
ARC-10153 B72-10558 06
- WELD STRENGTH**
Small-scale explosive welding of aluminum
LANGLEY-10941 B72-10002 04
Bonding titanium to Rene 41 alloy
ARC-10311 B72-10041 08
Nondestructive testing of microtab welds
ARC-10176 B72-10296 02
Strain gage attachment by spot welding reduces the fatigue strength of Ti-6Al-4V, Rene 41, and Inconel X
LANGLEY-10930 B72-10339 04
Joining porous components to solid metal structures
LEWIS-11259 B72-10754 08
- WELD TESTS**
Nondestructive testing of microtab welds
ARC-10176 B72-10296 02
Acoustic emission used as weld quality monitor
AEC-10018 B72-10427 08
- WELDABILITY**
Tungsten-reinforced tantalum
LEWIS-11750 B72-10684 04
- WELDED JOINTS**
Simple method for forming thin-wall pressure vessels
ARC-10511 B72-10025 08
Bonding titanium to Rene 41 alloy
ARC-10311 B72-10041 08
Nondestructive testing of microtab welds
ARC-10176 B72-10296 02
Portable electron beam weld chamber
MSC-17738 B72-10338 06
Portable beveling tool
M-FS-16863 B72-10678 07
The weld-brazing metal joining process
LANGLEY-11072 B72-10683 08
Reduction of porosity in aluminum weldments
MSC-14198 B72-10734 08
- WELDED STRUCTURES**
Nondestructive testing of microtab welds
ARC-10176 B72-10296 02
Analysis of thermal stress and metal movement during welding
M-FS-20984 B72-10333 04
Portable electron beam weld chamber
MSC-17738 B72-10338 06
Joining porous components to solid metal structures
LEWIS-11259 B72-10754 08
- WELDING**
Joining precipitation-hardened nickel-base alloys by friction welding
LEWIS-11514 B72-10288 08
Noncontaminating technique for making holes in existing process systems
LEWIS-11595 B72-10385 07

- Ion plating seals microcracks or porous metal components
LEWIS-11657 B72-10397 04
- WETTING**
Composite casting demonstration
M-FS-21668 B72-10266 04
- WHEATSTONE BRIDGES**
Simple non-destructive tests for electroexplosive devices
NPO-11563 B72-10315 01
- WHEELS**
Tubing cutter
NPO-11524 B72-10095 07
A permeable rotating-wheel solvent extractor
LRL-10033 B72-10343 04
Triangular wheel locomotion mechanism
NPO-11366 B72-10714 06
- WHISKER COMPOSITES**
Composite casting demonstration
M-FS-21668 B72-10266 04
- WICKS**
Restartable heat pipe
ARC-10198 B72-10188 03
Sonic limitations and startup problems of heat pipes
AEC-10036 B72-10368 03
- WIND (METEOROLOGY)**
Wind trajectory tracing for air pollution studies (AIRPOL)
NPO-11892 B72-10072 09
- WIND DIRECTION**
Wind trajectory tracing for air pollution studies (AIRPOL)
NPO-11892 B72-10072 09
Program to determine space vehicle response to wind turbulence
M-FS-21614 B72-10410 09
- WIND MEASUREMENT**
Wind trajectory tracing for air pollution studies (AIRPOL)
NPO-11892 B72-10072 09
Program to determine space vehicle response to wind turbulence
M-FS-21614 B72-10410 09
- WIND PROFILES**
Atmospheric density variations related to internal gravity waves
M-FS-21637 B72-10143 03
- WIND SHEAR**
Atmospheric density variations related to internal gravity waves
M-FS-21637 B72-10143 03
Program to determine space vehicle response to wind turbulence
M-FS-21614 B72-10410 09
- WIND TUNNEL APPARATUS**
Gyro spring augmentation system
ARC-10496 B72-10010 06
- WIND TUNNEL MODELS**
Pressure-probe assembly for wind tunnels
ARC-10569 B72-10248 03
Technique for producing wind-tunnel heat-transfer models
ARC-10658 B72-10349 08
- WIND TUNNEL NOZZLES**
Continuous-flow variable-density wind tunnel facilities
NPO-11287 B72-10078 06
- WIND TUNNELS**
Wind tunnel buffet load measuring technique
ARC-10495 B72-10022 06

WIND VELOCITY

- Urban air pollution dispersion model
AEC-10004 B72-10003 03
Program to determine space vehicle response to wind turbulence
M-FS-21614 B72-10410 09
- WINDING**
Magnets with stabilized conductors
HQ-10727 B72-10465 03
- WINDOWS**
Improved transmittance measurement with a magnesium oxide coated integrating sphere
LEWIS-11840 B72-10717 04
- WINDOWS (APERTURES)**
Increasing the response of PIN photodiodes to the ultraviolet
ARC-10274 B72-10053 03
Laser frequency modulation with electron plasma
AEC-10079 B72-10373 03
Flexible shielding system for radiation protection
LRL-10028 B72-10500 03
An absorption spectrum amplifier for determining gas composition
HQ-10752 B72-10524 03
Helium window for shock-tube monochromators
NPO-11852 B72-10556 03
- WINDOWS (INTERVALS)**
Arc protection system for high-power RF amplifiers
NPO-11560 B72-10099 02
- WINDS Aloft**
Program to determine space vehicle response to wind turbulence
M-FS-21614 B72-10410 09
- WINGS**
Reduction of fan noise: A concept
ARC-10312 B72-10040 06
- WIRE**
Hexapole magnet field analysis
GSFC-10995 B72-10113 03
Optical shutter for use in shock tubes
ARC-10516 B72-10128 03
Long-term drift of thermocouples at 1600 K
LEWIS-11471 B72-10176 01
Improved high-performance shock tube
NPO-11885 B72-10242 03
New twisted intermetallic compound superconductor: A concept
LEWIS-11015 B72-10282 04
A manually set magnetic wire counter
AEC-10039 B72-10369 01
Magnet-wire wrapping tool for integrated circuits
NPO-11815 B72-10426 07
An approach to real-time process control of semiconductor wire-bonding
M-FS-21558 B72-10644 08
- WIRE CLOTH**
Wide-range dynamic pressure sensor
ARC-10263 B72-10196 03
A permeable rotating-wheel solvent extractor
LRL-10033 B72-10343 04
- WIRE GRID LENSES**
Efficient wire-grid duplexer-polarized for CO2 lasers
GSFC-11403 B72-10440 03
- WIRE WINDING**
Magnet-wire wrapping tool for integrated circuits
NPO-11815 B72-10426 07

SUBJECT INDEX

ZIRCONIUM OXIDES

WORK CAPACITY

Restraint and locomotion aid
ARC-10153 B72-10558 06

WORK FUNCTIONS

A voltage-tunable three-terminal Gunn device
HQ-10783 B72-10518 01
High temperature gallium phosphide rectifiers
LEWIS-11804 B72-10673 01

WORKING FLUIDS

Cavitating Venturi sump
ARC-10504 B72-10012 06
Restartable heat pipe
ARC-10198 B72-10188 03

X

X RAY ANALYSIS

Remote sensing X-ray spectrometer
MSC-13978 B72-10016 03
Analysis of microsize particulates
ARC-10647 B72-10565 04

X RAY APPARATUS

Radiological control manual
M-FS-22092 B72-10460 03

X RAY DIFFRACTION

Analysis of microsize particulates
ARC-10647 B72-10565 04

X RAY IRRADIATION

Irradiation of MOS-FET devices to provide desired logic functions
GSFC-11061 B72-10719 01

X RAY SPECTROSCOPY

Remote sensing X-ray spectrometer
MSC-13978 B72-10016 03

X RAYS

A liquid radiation detector with high spatial resolution
MSC-13965 B72-10034 03
Improved intensifying screen reduces X-ray exposure
AEC-10090 B72-10232 03
Radiation-induced nickel deposits
LEWIS-10965 B72-10456 04

XENON

A liquid radiation detector with high spatial resolution
MSC-13965 B72-10034 03
High-temperature, long-life thyratron
LEWIS-11327 B72-10134 01
Separation of gas mixtures by centrifugation
ARC-10449 B72-10270 03

XENON ISOTOPES

Enhanced Lamb dip for absolute laser frequency stabilization
HQ-10695 B72-10481 02

XENON LAMPS

An absorption spectrum amplifier for determining gas composition
HQ-10752 B72-10524 03

Y

YARNS

Fabrication of uniaxial filament-reinforced epoxy tubes for structural application
LANGLEY-10203 B72-10340 04
Nonflammable and abrasion resistant coating process for glass fibers
MSC-14024 B72-10445 08

YAW

Inertial reference unit
NPO-11518 B72-10094 02
Interferometric rotation sensor
ARC-10278 B72-10274 03

YIELD STRENGTH

Simple method for forming thin-wall pressure vessels
ARC-10511 B72-10025 08
Acoustic emission used as weld quality monitor
AEC-10018 B72-10427 08
Nonmetallic impurities improve mechanical properties of vapor-deposited tungsten
LEWIS-10800 B72-10454 04

YTTRIUM ALLOYS

Advanced protective coating for superalloys
LEWIS-11473 B72-10150 04

YTTRIUM OXIDES

Floating zone process for drawing small diameter fibers of refractory materials
LEWIS-11380 B72-10491 04

Z

ZENITH

Compensating subreflector for two-reflector antennas: A concept
NPO-11503 B72-10093 06

ZERO LIFT

Mislift and miss-drag programs
LANGLEY-10932 B72-10153 09

ZINC COMPOUNDS

Plasma calcining of pigment particles for thermal control coatings
M-FS-21267 B72-10320 04
Flexible shielding system for radiation protection
LRL-10028 B72-10500 03

ZINC OXIDES

Study of in-situ degradation of thermal control surfaces
M-FS-20892 B72-10336 04
Investigation of environmental effects on coatings for thermal control
M-FS-21932 B72-10596 04
Improved zinc oxide thermal control coatings
NPO-11139 B72-10711 04

ZIPPER

Zipper-type electrical connectors
NPO-11639 B72-10159 01

ZIRCONIUM

High-temperature ceramic-to-ceramic seals
ARC-10319 B72-10199 04
Oxygen reclamation with solid oxide electrolytes
ARC-10487 B72-10273 03

ZIRCONIUM ALLOYS

Insulating effectiveness of self-spacing dimpled foil
LEWIS-10941 B72-10406 04

ZIRCONIUM OXIDES

Fabrication of large ceramic electrolyte disks
ARC-10320 B72-10202 03

PERSONAL AUTHOR INDEX

Issue 13

Personal Author Index

This index is arranged alphabetically by author. The Tech Brief title is listed followed by the originating Center number, e.g., GSFC-10993. The Tech Brief number, e.g., B72-10346 is followed by a two-digit number, e.g., 01, which designates the subject category.

A

- AAGARD, R. L.**
Manganese bismuth thin film for large capacity digital memories
M-FS-21246 B72-10107 03
- ABERNATHY, W. J.**
Precision machining of steel decahedrons
M-FS-21361 B72-10597 07
- ACKERMAN, G. H.**
Heat transfer correlations for kerosene fuels and mixtures and physical properties for Jet A fuel
LEWIS-11652 B72-10742 04
- ACRES, R. L.**
Combination pressure regulator and safety valve: A Concept
MSC-14088 B72-10446 06
High pressure liquid gas pump
MSC-14087 B72-10590 06
- ADACHI, R. R.**
Programmed physiological infusion system
ARC-10447 B72-10126 05
- ADAMS, D. W.**
High torque bellows seal rotary drive
LEWIS-11813 B72-10681 07
- ADAMSON, M. J.**
Ultraviolet and thermally stable polymer compositions
ARC-10592 B72-10709 04
- ADELMAN, A. H.**
Erasable holographic medium using cis-trans isomerization
M-FS-22062 B72-10720 03
- ADLER, I.**
Remote sensing X-ray spectrometer
MSC-13978 B72-10016 03
- AGNEW, C. V.**
Pseudo-saturating power converter
NPO-11368 B72-10042 01
- AGUILAR, A. G.**
Built-in bleeder system in laminated plastic structures
MSC-17713 B72-10562 08
- AISENBERG, S.**
Interferometric measurement of the velocity of radiating particles
HQ-10371 B72-10495 03
- ALEXANDER, P., JR.**
Squib-operated disconnect
NPO-11330 B72-10713 06
- ALFORD, C. O.**
Errors in hybrid computers
M-FS-21289 B72-10141 02
- ALLEN, G. P.**
Computer program for calculating the temperature field of face seals
LEWIS-11110 B72-10483 09
- ALLEN, J. R.**
Dc motor proportional control system for orthotic devices
M-FS-21573 B72-10617 05
- ALMASI, G. S.**
Redundancy approaches in bubble domain memories
M-FS-21915 B72-10643 01
- ALVAREZ, L.**
A liquid radiation detector with high spatial resolution
MSC-13965 B72-10034 03
- ANDERHOLM, J. R.**
Multipurpose top for liquid helium Dewar
ARC-10533 B72-10302 03
- ANDERSON, D. A.**
A method for calculating the effects of design errors and measurement errors on pump performance
LEWIS-11503 B72-10292 07
- ANDERSON, T. O.**
Technique minimizes the effects of dropouts on telemetry records
NPO-11421 B72-10088 02
- ANDRAE, R. W.**
Repeatable method of thermal stress fracture test of brittle materials
NUC-11019 B72-10258 06
- ANDREWS, J. B.**
Analysis of thermal stress and metal movement during welding
M-FS-20984 B72-10333 04
- ANGELE, W.**
Slitting flat conductor cables with the single cutting edge slitter
M-FS-20111 B72-10575 07
Machine finishes balls to high degree of roundness
M-FS-21448 B72-10595 08
- ANTHONY, P. L.**
Magnetic circuitry mutual coupling probe
M-FS-21664 B72-10535 02
- APPLEBERRY, W. T.**
Perload indicating turnbuckle
M-FS-21488 B72-10355 07
- ARMSTRONG, W. E.**
Low temperature catalytic ignition of hydrogen and oxygen
ARC-10492 B72-10127 03
- ARNOLD, C. R.**
Trace contaminant adsorption and sorbent regeneration in closed ecological systems
LANGLEY-10681 B72-10328 04
- ARNOLD, W. E., JR.**
The weld-brazing metal joining process
LANGLEY-11072 B72-10683 08
- ARVESEN, J. C.**
Assessment of water pollution by airborne measurement of chlorophyll
ARC-10648 B72-10566 04
- ASBURY, J. G.**
Effect of thermal discharges on the mass energy balance of Lake Michigan
AEC-10013 B72-10004 03
- ASHBROOK, R. L.**
High strength alloy for immediate temperature, 24 to 704 C (75 to 1300 F), applications
LEWIS-11634 B72-10344 04
- ASHER, I. M.**
Temperature control of a cryogenic bath
HQ-10788 B72-10532 03
- ASHFORD, N. A.**
Investigation of environmental effects on coatings for thermal control
M-FS-21932 B72-10596 04
- ASHLEY, W. W.**
Cutting thin sections of bone
ARC-10555 B72-10303 05
- ASQUITH, R. C.**
Flexible desk top computers using Large Scale Integration (L.S.I.) chips
M-FS-21277 B72-10112 01
- AUGASON, G. C.**
Liquid-helium-cooled Michelson interferometer
ARC-10554 B72-10217 03
- AUSKERN, A.**
Strengthening lightweight concrete
AEC-10017 B72-10430 04
- AUSTIN, W. E.**
A Compton scatter attenuation gamma ray spectrometer
M-FS-21441 B72-10487 03

B

- BABCOCK, M. L.**
Speech therapy and voice recognition instrument
HQ-10628 B72-10652 05

- BABIN, A.**
Flexible shielding system for radiation protection
LRL-10028 B72-10500 03
- BABINSKY, A. D.**
Aircrew oxygen system
ARC-10247 B72-10195 05
Counter lung
ARC-10248 B72-10219 05
- BACIGALUPI, R. J.**
Tungsten-reinforced tantalum
LEWIS-11750 B72-10684 04
- BAKER, C. D.**
Soldering iron temperature indicator
NPO-11545 B72-10098 02
Improved electrical spot terminals
NPO-10034 B72-10492 01
- BAKER, S. I.**
Boron-10 loaded inorganic shielding material
M-FS-22280 B72-10740 04
- BALES, T. T.**
The weld-brazing metal joining process
LANGLEY-11072 B72-10683 08
- BALL, R. G.**
Geometrically nonlinear static and dynamic analysis of arbitrarily loaded shells of revolution
LANGLEY-11109 B72-10504 09
- BALLOU, E. V.**
Stabilization of porous glass reverse-osmosis membranes
ARC-10646 B72-10309 04
- BARRANGER, J. P.**
High temperature permeameter for measuring magnetic properties
LEWIS-11609 B72-10443 03
- BARRAS, A. P.**
Three-point compound sine plate offers cost and weight savings
MSC-15818 B72-10118 07
- BARROWS, W. F.**
Implanted telemeter for electrocardiogram and body temperature
XAC-08505 B72-10035 05
- BARTH, C. W.**
Program for creating an operating system generation cross reference index (SGINDEX)
GSFC-11612 B72-10650 09
- BARTLETT, R. G.**
Breathing-metabolic simulator
HQ-10766 B72-10657 05
Metabolic simulation chamber
HQ-10776 B72-10658 05
Drive mechanism for production of simulated human breath
HQ-10777 B72-10659 05
Temperature and humidity control of simulated human breath
HQ-10778 B72-10660 05
Simulated breath waveform control
HQ-10779 B72-10661 05
- BASS, A. M.**
An absorption spectrum amplifier for determining gas composition
HQ-10752 B72-10524 03
- BASS, C. D.**
Efficient wire-grid duplexer-polarized for CO₂ lasers
GSFC-11403 B72-10440 03
- BASTIEN, G. J.**
Gas-flow restrictor
NPO-10117 B72-10703 03
- BASTIEN, R. C.**
Unsupported thin film beam splitter
GSFC-10525 B72-10471 02
- BATHKER, D. A.**
Compensating subreflector for two-reflector antennas: A concept
NPO-11503 B72-10093 06
- BATSON, P. J.**
A cryopump for cooling objects at a distance
LRL-10031 B72-10314 03
- BAUM, E. A.**
High-temperature, long-life thyratron
LEWIS-11327 B72-10134 01
- BEALE, H.**
Magnetometer uses bismuth-selenide
LEWIS-11632 B72-10629 03
- BECK, J. C.**
Alignment microscope for rotating laser scanner
MSC-14118 B72-10435 03
- BECKMAN, C.**
Illumination control system
ARC-10527 B72-10167 02
- BEEN, J. F.**
Simple dynamic electromagnetic radiation detector
LEWIS-11159 B72-10227 03
- BEJCZY, A. K.**
Optimized braking of landing vehicles with atmospheric drag
NPO-11402 B72-10084 06
- BELL, C. C.**
Gravitational gradiometer measures mass changes
M-FS-20814 B72-10140 03
- BELL, J. L.**
Improved elastomer for use with oxygen difluoride
ARC-10528 B72-10027 04
- BELL, L. E.**
Simple turbine balancing test apparatus
LEWIS-11658 B72-10377 07
- BEMENT, L. J.**
Small-scale explosive welding of aluminum
LANGLEY-10941 B72-10002 04
- BENNETT, W. H.**
Cathode for use with low density gases
HQ-10687 B72-10530 01
Prevention of cathode damage from positive ion bombardment
HQ-10688 B72-10654 03
- BENNETT, W. P.**
Compression and R-wave detection of ECG/VCG data
MSC-14126 B72-10391 05
- BERGEN, G.**
Glass technology involved in the manufacture of magnetometer components
GSFC-11283 B72-10132 03
- BERGGREN, C. C.**
Improved magnesia for thermal control coatings
ARC-10677 B72-10424 04
- BERNATOWICZ, D. T.**
Flexible, low-cost silicon solar cell arrays
LEWIS-11069 B72-10177 02
- BERRY, R. L.**
Vibrational transfer functions for complex structures
M-FS-20744 B72-10648 09
- BIENERT, W. B.**
Feedback control of variable conductance heat pipes
ARC-10460 B72-10169 03
- BILLINGS, D.**
Lightning flash detection system
ARC-10562 B72-10272 02
- BILLINGSLEY, J. B.**
Two autowire versions for CDC-3200 and IBM-360
GSFC-11526 B72-10608 09
- BILLMAN, K. W.**
Measurement of electron density and temperature in plasmas
ARC-10598 B72-10563 03
- BIRCH, D. C.**
An absentee monitoring device
KSC-10668 B72-10578 01
- BISHOP, C. J.**
Humidity resistant solar cell contacts
HQ-10674 B72-10517 04
- BISSELL, E. R.**
Polymeric binder for explosives
AEC-10062 B72-10366 04
- BITTKER, D. A.**
Carbon monoxide oxidation rates computed for automobile thermal reactor conditions
LEWIS-11638 B72-10137 04
Chemical kinetics computer program for static and flow reactions
LEWIS-11467 B72-10580 04
- BLAISE, H. T.**
Dc motor proportional control system for orthotic devices
M-FS-21573 B72-10617 05
- BLANCHARD, M. B.**
Analysis of microsize particulates
ARC-10647 B72-10565 04
- BLOCKER, J. M., JR.**
Dispersion-strengthened chromium alloy
LEWIS-10982 B72-10378 04
- BLUM, D. E.**
Stem clutch for motor driven valve
LRL-10032 B72-10345 07
- BODENSIECK, E. J.**
Freon 21 bearing lubrication and coolant system
HQ-10302 B72-10651 06
- BOER, K. W.**
High field CdS detector for infrared radiation
LANGLEY-11027 B72-10725 04
- BOERNER, R. Y.**
Fill and vent quick disconnect
M-FS-21822 B72-10645 07
- BOIES, D. B.**
Electrodes for sealed secondary batteries
ARC-10238 B72-10050 02
- BOISSEVAIN, A. G.**
Optical alignment of electrodes on electrical discharge machines
XAC-09489 B72-10036 07
- BOND, J. A.**
Insulating effectiveness of self-spacing dimpled foil
LEWIS-10941 B72-10406 04
- BONNER, W. B.**
Phosphorus in land-water systems
AEC-10049 B72-10429 05
- BORUCKI, W. J.**
Lightning flash detection system
ARC-10562 B72-10272 02
- BOSE, T. K.**
Computation of laminar heat transfer

- from gaseous plasmas in electromagnetic fields
NPO-11725 B72-10707 03
- BOSOMWORTH, D. R.**
A visual-display and storage device
GSFC-10901 B72-10647 02
- BOURICIUS, W. G.**
Techniques for improving reliability of computers
M-FS-21326 B72-10109 02
- BOWMAN, R. L.**
Improved transmittance measurement with a magnesium oxide coated integrating sphere
LEWIS-11840 B72-10717 04
- BOWYER, S.**
High-intensity source of extreme ultraviolet
HQ-10754 B72-10528 03
- BRADANINI, P. A.**
Universal dc signal conditioner
MSC-17526 B72-10510 02
- BRAIN, A. E.**
Roll function in a flight simulator
ARC-10557 B72-10417 02
- BRAINARD, W. A.**
Ion plating seals microcracks or porous metal components
LEWIS-11657 B72-10397 04
- BRAMBLETT, E.**
Microresonator for damping flow oscillations
M-FS-18401 B72-10105 06
- BRANDEWIE, J. V.**
Guidelines for fabrication of hybrid microcircuits
M-FS-21964 B72-10393 01
- BRANDHORST, H. W.**
High intensity solar cell radiometer
LEWIS-11549 B72-10480 01
- BRANDNER, J. J.**
Survey of aircraft electrical power systems
LEWIS-11678 B72-10383 02
- BRANDSTETTER, A. W.**
Gyro spring augmentation system
ARC-10496 B72-10010 06
- BRANTNER, R. E.**
Voltage-tunable parallel-T filter for remote operation
NPO-11165 B72-10077 01
- BRATFISCH, W. A.**
Leaching of nitroso rubber material removes uncured polymer
MSC-17185 B72-10449 04
- Self-aligning, low-pressure sealing poppet valve
MSC-17745 B72-10538 07
- BREITWIESER, R.**
Tungsten-reinforced tantalum
LEWIS-11750 B72-10684 04
- BRESLIN, C.**
Convuluted fabric for full-pressure gloves
ARC-10529 B72-10215 04
- BREWER, A. C.**
System/360 Computer Assisted Network Scheduling (CANS) System
GSFC-10909 B72-10599 09
- BRIEHL, D.**
Air assist fuel nozzle reduces aircraft gas turbine engine emissions at idle operation
LEWIS-11512 B72-10434 07
- BRODER, J. D.**
Flexible, low-cost silicon solar cell arrays
LEWIS-11069 B72-10177 02
- BRODERICK, J. J.**
A system for early warning of bearing failure
M-FS-21877 B72-10494 06
- BRODIE, S.**
A proposed remote manipulator system: A concept
MSC-14245 B72-10733 06
- BROKAW, R. S.**
Carbon monoxide oxidation rates computed for automobile thermal reactor conditions
LEWIS-11638 B72-10137 04
- BROUILLETTE, J. W.**
Development of chip passivated monolithic complementary MISFET circuits with beam leads
M-FS-22264 B72-10696 01
- BROUSSARD, P. H., JR.**
A simple dead-reckoning navigational system
M-FS-21165 B72-10409 02
- BROWN, G. V.**
New twisted intermetallic compound superconductor: A concept
LEWIS-11015 B72-10282 04
- BROWN, H.**
New reaction tester accurate within 56 microseconds
MSC-13604 B72-10031 05
- BROWN, R. A.**
Fluid operated quick release mechanism
M-FS-20205 B72-10640 07
- BROWN, R. L., SR.**
Aircraft communication via telefacsimile system
M-FS-20839 B72-10139 02
- Neutron radiographic viewing system
M-FS-22024 B72-10468 02
- BROWN, R. M.**
Redirecting electromagnetic beams through wide angles
ARC-10602 B72-10307 03
- BROWN, W.**
An absorption spectrum amplifier for determining gas composition
HQ-10752 B72-10524 03
- BUCHANAN, R. A.**
Improved intensifying screen reduces X-ray exposure
AEC-10090 B72-10232 03
- BUCKLEY, D. H.**
Ion plating seals microcracks or porous metal components
LEWIS-11657 B72-10397 04
- BUCKMANN, P. S.**
Turbopump radial and axial rotor support system
M-FS-21495 B72-10264 07
- BUGGELE, A. E.**
Improved method for reclaiming vacuum diffusion pump oil
LEWIS-11647 B72-10511 04
- BUNTENBACH, R. W.**
Two-stage magnetometer measures weak magnetic fields
AEC-10068 B72-10370 01
- BURCHER, E. E.**
A transmitting and reflecting diffuser for ultraviolet light
LANGLEY-10385 B72-10611 03
- BURCHILL, R. F.**
A system for early warning of bearing failure
M-FS-21877 B72-10494 06
- New detection method for rolling element and bearing defects
M-FS-21911 B72-10689 06
- BURGER, B. L.**
Filter cassette for high volume air sampler
LEWIS-11469 B72-10379 03
- BURGESS, T. J.**
Laser frequency modulation with electron plasma
AEC-10079 B72-10373 03
- BURICK, R. J.**
Probe measures gas and liquid mass flux in high mass flow ratio two-phase flows
LEWIS-11270 B72-10546 06
- BURNS, A. E.**
Propulsion sizing program
MSC-14016 B72-10605 09
- BURNS, R. A.**
Ball bearing protector
M-FS-21612 B72-10322 07
- BURR, J. C., JR.**
Filter cassette for high volume air sampler
LEWIS-11469 B72-10379 03
- BURROUS, C. N.**
Increasing the response of PIN photodiodes to the ultraviolet
ARC-10274 B72-10053 03
- Temperature compensation of light-emitting diodes
ARC-10467 B72-10218 01
- BURT, R. W.**
Accurate measurement of telemetry performance
NPO-11457 B72-10089 02
- BURTON, G. W.**
Nondestructive-test standards for evaluation of fiber-reinforced composites
M-FS-21288 B72-10157 04
- BUSH, J. C.**
A continuous physiological data collector
M-FS-20835 B72-10402 05
- BYER, R. L.**
Enhanced Lamb dip for absolute laser frequency stabilization
HQ-10695 B72-10481 02
- BYERS, D. C.**
Improved high voltage-insulator for use in vacuum
LEWIS-11401 B72-10181 01
- BYRD, N. R.**
Improved thermally conducting electron transfer polymers
GSFC-11304 B72-10291 04

C

- CABEAL, J. A.**
Electromagnetic rheometer
ARC-10525 B72-10416 04
- CADIN, D., JR.**
Response of a panel structure to reverberant acoustic excitation
M-FS-21774 B72-10603 06
- CADY, E. C.**
Main tank injection pressurization program
LEWIS-11368 B72-10069 09
- CALDER, G. V.**
A method of isolating organic compounds present in water
AEC-10010 B72-10044 04

CALLAWAY, P. W.

Differential input preamplifier
ARC-10489 B72-10165 01

CAMARILLO, R. G.

Helium leak measurements using CO₂
as a carrier
M-FS-21742 B72-10354 03

CAMBRA, J. M.

High voltage protection network
ARC-10197 B72-10119 02

CAMPBELL, M. E.

Research on bearing lubricants for use
in a high vacuum
M-FS-22119 B72-10469 04

CAMPBELL, R.

Technical management techniques for
identification and control of industrial
safety and pollution hazards
M-FS-21883 B72-10588 05

CANNON, W. A.

Oxygen carrier for gas chromatographic
analysis of inert gases in propellants
ARC-10574 B72-10249 04

CANRIGHT, R. B., JR.

Computer program draws three-
dimensional surfaces
LEWIS-10482 B72-10253 09

CARDEN, A. E.

Repeatable method of thermal stress
fracture test of brittle materials
NUC-11019 B72-10258 06

CARLE, G. C.

Simple gas chromatographic system for
analysis of microbial respiratory gases
ARC-10403 B72-10207 03

CARPENTER, B.

Patient's breath controls comfort
devices
LANGLEY-11138 B72-10533 05

CARRIKER, J. W.

Combination throttle and shutoff valve
M-FS-21513 B72-10287 07

CARROLL, C. E.

Electrical grounding bracket
ARC-10041 B72-10045 01

CARTER, E. S.

Twistable mold for helicopter blades
ARC-10682 B72-10432 08

CARUSO, S. V.

Specification guidelines for hybrid
microcircuits
M-FS-22090 B72-10474 01

CASTLE, J. G.

Improved electrodes for skin contacts
M-FS-21926 B72-10698 05

CATER, W. C.

Techniques for improving reliability of
computers
M-FS-21326 B72-10109 02

CELINO, V. A.

Cell for electrolysis of water vapor
ARC-10521 B72-10166 03

CETAS, T. C.

Low temperature scale for a 1 to 20
degree Kelvin region
AEC-10007 B72-10146 03

CHAMBERS, C. M.

Slitting flat conductor cables with the
single cutting edge slitter
M-FS-20111 B72-10575 07

CHAMIS, C. C.

Equations to assess the impact resist-
ance of fiber composites
LEWIS-11486 B72-10503 04

CHANG, C. S.

Wind tunnel buffet load measuring
technique
ARC-10495 B72-10022 06

Improved audio reproduction system
ARC-10404 B72-10059 01

CHAPMAN, C. P.

Peak acceleration limiter
NPO-10556 B72-10007 01

CHEN, D.

Manganese bismuth thin film for large
capacity digital memories
M-FS-21246 B72-10107 03

CHENG, D. Y.

Control of oscillations in a discharge
circuit
ARC-10556 B72-10304 01

CHEO, P. K.

Efficient wire-grid duplexer-polarized for
CO₂ lasers
GSFC-11403 B72-10440 03

CHERNOFF, R. C.

Arc protection system for high-power
RF amplifiers
NPO-11560 B72-10099 02

CHEVALIER, J. L.

Study of hot hardness characteristics
of tool steels
LEWIS-11785 B72-10583 04

CHIAO, R. Y.

Transmission of optical frequencies with
minimal losses
HQ-10541 B72-10389 03

CHILD, F. T.

Electrodes for sealed secondary
batteries
ARC-10238 B72-10050 02

CHIN, J.

Nonmetallic impurities improve mechan-
ical properties of vapor-deposited
tungsten
LEWIS-10800 B72-10454 04

CHOW, T. S.

Standardization and qualification of
computer programs for circuit design
M-FS-21537 B72-10142 09

CHRISTIAN, J. D.

Accurate measurement of gas volumes
by liquid displacement
ARC-10723 B72-10699 03

CIMERMAN, I.

A sonic transducer to detect fluid
leaks
KSC-10704 B72-10376 01

CISCO, T. C.

Design of microstrip components by
computer
LANGLEY-11210 B72-10741 01

CIZEK, G. J.

Built-in bleeder system in laminated
plastic structures
MSC-17713 B72-10562 08

CLARK, B. F.

Development of a polyimide for use
as a temperature and solvent resistant
sealant
M-FS-21325 B72-10262 04

CLARK, G. A.

Titanium reinforced boron polyimide
composite
M-FS-21916 B72-10353 04

CLARK, H. L.

A system for early warning of bearing
failure
M-FS-21877 B72-10494 06

CLARKE, J. F. G., JR.

Titanium alloy stress corrosion cracking
in presence of dinitrogen tetroxide
M-FS-21113 B72-10321 04

CLATTERBUCK, C.

Devolatilization of polymer resins
GSFC-11358 B72-10280 04

CLELAND, E. L.

Performance of silicon solar cell
assemblies
NPO-11847 B72-10186 01

COFFIN, R. C.

Low phase-shift amplifier
NPO-11663 B72-10185 01

COHEN, A. E.

Controlled flow assembly
M-FS-21716 B72-10404 07

COHEN, J.

Speech therapy and voice recognition
instrument
HQ-10628 B72-10652 05

COHEN, V. D.

Algorithm for Liapunov stability
analysis
ARC-10498 B72-10023 09

COLE, I.

Significance arithmetic experimental
package (SIGPAC)
GSFC-11499 B72-10600 09

COLE, S. R.

Inorganic glass ceramic slip rings
M-FS-20711 B72-10313 04

COLES, W. D.

New twisted intermetallic compound
superconductor: A concept
LEWIS-11015 B72-10282 04

COLLINS, E. R., JR.

Energy absorbing system for mechanical
impacts
NPO-10671 B72-10712 06

CONLEY, J. M.

Oscillating hot-wire anemometer
NPO-11634 B72-10609 02

CONNER, A. Z.

Titanium alloy stress corrosion cracking
in presence of dinitrogen tetroxide
M-FS-21113 B72-10321 04

CONNOLLY, J. P.

Real-time pair-feeding of animals
ARC-10302 B72-10298 05

CONOVER, M. F.

Compression and R-wave detection of
ECG/VCG data
MSC-14126 B72-10391 05

COOK, J. E.

Time-lapse camera for microscopy
ARC-10423 B72-10125 05

COOKE, W. A.

Driver circuit for inductive loads
ARC-10073 B72-10268 01

COOPER, R. A.

Prediction of flow-induced failures of
braided flexible hoses and bellows
M-FS-19004 B72-10407 06

COPELAND, C. S.

Chuck for delicate drills
ARC-10660 B72-10414 07

COPELAND, R. J.

Space-suit carbon dioxide absorption
system: A concept
ARC-10546 B72-10168 05

CORBETT, R. L.

Silver stain for electron microscopy
ARC-10661 B72-10415 05

CORK, L. Z.

Airlock caution and warning system
M-FS-21576 B72-10467 02

- CORRAL, J. S.**
Removal of filler material from large high energy formed parts
M-FS-16326 B72-10104 06
- CORRIE, B. L.**
Development of chip passivated monolithic complementary MISFET circuits with beam leads
M-FS-22264 B72-10696 01
- COTA, F. L.**
Heart catheter cable and connector
ARC-10406 B72-10200 05
- COULBERT, C. D.**
Specimen for high-temperature tensile tests
ARC-10531 B72-10028 04
- COUSIN, A. S.**
Ball detent mechanism
M-FS-21735 B72-10470 07
- COX, G. R.**
Propellant feed systems transients
MSC-17848 B72-10677 06
- CRAFORD, M. G.**
High temperature gallium phosphide rectifiers
LEWIS-11804 B72-10673 01
- CRANE, H. D.**
Projections of scan patterns on human retina
ARC-10181 B72-10193 05
Scanning technique for tracking small eye-movements
ARC-10488 B72-10220 05
- CRAWFORD, R. A.**
Precision voltage regulator
NPO-11502 B72-10092 01
Inertial reference unit
NPO-11518 B72-10094 02
Electronic integrator for gyro rate output voltages
NPO-11499 B72-10555 01
- CRAWFORD, W. E.**
Wide angle solar sensor
NPO-11341 B72-10080 01
- CRESS, S. B.**
Coaxial inverted geometry epitaxial transistor
ARC-10330 B72-10056 01
- CRIDLIN, M.**
Preventing oil migration in vacuum systems
GSFC-11253 B72-10129 04
- CRON, R. G.**
Analytical failure determination of flow-induced fatigue in bellows
M-FS-18178 B72-10488 06
- CROOK, G. M.**
Lightweight, broad-band spectrum analyzer
ARC-10405 B72-10060 01
- CROUSE, J. E.**
FORTRAN program for computing coordinates of circular-arc, single and tandem, turbine and compressor, blade sections on a plane
LEWIS-11237 B72-10405 09
- CURRERI, J. S.**
Low frequency sinusoidal pressure generator
LEWIS-11465 B72-10477 01
- CURTIS, D. A.**
Improved optical filters for automated visual inspection
HQ-10720 B72-10521 03
- CURTIS, S. B.**
A study of radiation environment in space and its biological effects
HQ-10798 B72-10662 03
- CUSHING, V. J.**
Low noise electromagnetic flowmeter
M-FS-21291 B72-10108 02
- CZAPOR, H. P.**
Noncontaminating technique for making holes in existing process systems
LEWIS-11595 B72-10385 07
- D**
- DANCHENKO, V.**
Irradiation of MOS-FET devices to provide desired logic functions
GSFC-11061 B72-10719 01
- DANE, P. H.**
Sprag solenoid brake
M-FS-21846 B72-10669 06
- DANIEL, R. J.**
Standard environmental testing practices
NPO-11567 B72-10101 02
- DANIELSON, H. D.**
Gyro spring augmentation system
ARC-10496 B72-10010 06
- DASH, J. B.**
GPEDIT
GSFC-11308 B72-10620 09
- DAVIDSON, G. A.**
A compact spectroradiometer for solar simulator measurements
HQ-10683 B72-10327 03
- DAVIS, D. P.**
Squib-actuated disconnect device
NPO-11544 B72-10097 06
- DAVIS, E. J.**
A cable stabilizer for outdoor elevators
KSC-10513 B72-10283 07
- DAVIS, J. G., JR.**
Fabrication of uniaxial filament-reinforced epoxy tubes for structural application
LANGLEY-10203 B72-10340 04
- DAVIS, L.**
Determination of impact sensitivity of materials at high pressures
MSC-13700 B72-10216 07
- DAVIS, T. R.**
Halogenation of microcapsule walls
ARC-10410 B72-10161 04
- DAVIS, W. S.**
Flow equation for porous plug and capillary tube flow restrictors
GSFC-11387 B72-10289 06
- DAWN, F.**
Nonflammable potting, encapsulating and/or conformal coating compound
MSC-13499 B72-10337 04
- DEBOO, G. J.**
Nondispersive infrared analyzer for specific gases in complex mixtures
ARC-10308 B72-10198 03
Temperature compensation of light-emitting diodes
ARC-10467 B72-10218 01
- DEERKOSKI, L. F.**
Signal to noise measurement circuit
GSFC-11239 B72-10102 01
- DEFFEBACH, H. L.**
A study of the power spectral density of an FM signal
M-FS-21070 B72-10361 02
- DELOLLIS, N. J.**
Adhesion theory review
AEC-10083 B72-10231 04
Bondability of RTV silicon rubber
AEC-10026 B72-10367 04
- DEMANDEL, R. E.**
Selecting digital filters
M-FS-20933 B72-10156 01
- DEROSE, C. E.**
Technique for producing wind-tunnel heat-transfer models
ARC-10658 B72-10349 08
- DESCAMP, V. A.**
Tool carrier
M-FS-21469 B72-10319 07
- DETHLEFSEN, R.**
Pulsed high-power arc heater with improved cathode and triggering mechanism
ARC-10173 B72-10048 03
- DEVERALL, J. E.**
Sonic limitations and startup problems of heat pipes
AEC-10036 B72-10368 03
- DEVLIN, M.**
Speed enhancement of complementary MOS devices
ARC-10387 B72-10184 01
- DIAGUILA, A. J.**
High torque bellows seal rotary drive
LEWIS-11813 B72-10681 07
- DIBBLE, A. C.**
Position indicating, rotating boom
LANGLEY-11202 B72-10066 07
- DICARLO, J. A.**
Design curve for liquid helium storage vessels
LEWIS-11498 B72-10286 02
- DIEKELMAN, D. P.**
FORTRAN read package
MSC-14161 B72-10750 09
- DIETRICH, M. W.**
Common bearing material has highest fatigue life at moderate temperature
LEWIS-11592 B72-10382 04
Study of hot hardness characteristics of tool steels
LEWIS-11785 B72-10583 04
- DILLARD, W. H.**
High-volume pressure relief valve
KSC-10707 B72-10536 07
- DILLON, J. J.**
Nonflammable and abrasion resistant coating process for glass fibers
MSC-14024 B72-10445 08
- DIMEFF, J.**
Vibrating ribbon bolometer: A concept
XAC-10768 B72-10170 03
Wide-range dynamic pressure sensor
ARC-10263 B72-10196 03
Nondispersive infrared analyzer for specific gases in complex mixtures
ARC-10308 B72-10198 03
Redirecting electromagnetic beams through wide angles
ARC-10602 B72-10307 03
A simple tachometer circuit
ARC-10603 B72-10308 01
Diode-quad bridge for reactive transducers and FM discriminators
ARC-10364 B72-10691 01

- DIMINO, J. M.**
Portable electron beam weld chamber
MSC-17738 872-10338 06
- DITTRICH, R. T.**
Experimental study of flow distribution
with circumferential manifolds
LEWIS-11649 872-10738 06
- DOLAND, G. D.**
An improved learning decoder
MSC-14070 872-10573 02
- DONALDSON, R. W., JR.**
Nondispersive infrared analyzer for
specific gases in complex mixtures
ARC-10308 872-10198 03
Microminiature gas chromatographic
column
ARC-10594 872-10306 04
- DONOVAN, G.**
A rapid, precise, reciprocating-
movement color filter system
GSFC-11255 872-10497 07
- DOSHI, D.**
Electrodynamic actuators for rocket
engine valves
ARC-10486 872-10009 06
- DOTSON, W. P.**
Third order digital-to-analog converter
MSC-12458 872-10030 02
- DOWELL, R. H.**
Vise to hold bones or other irregular
objects
ARC-10679 872-10569 07
- DRESHFIELD, R. L.**
Advanced alloy design technique: High
temperature cobalt base superalloy
LEWIS-10436 872-10514 04
- DROZDOWSKI, J. M.**
Automatic computer subprogram selec-
tion from application-program libraries -
ALLIB
LANGLEY-11124 872-10607 09
- DUBMAN, M. R.**
Spectral analysis of multiple time
series
M-FS-18859 872-10614 09
- DUBOIS, R. D.**
No-err typing aids
M-FS-15218 872-10498 07
- DUDENHOEFER, J. E.**
Watertight low-cost electrical
connector
LEWIS-11552 872-10506 01
- DUZINSKI, T. J.**
A multielement probe for coincident
temperature and pressure measurements
LEWIS-11775 872-10716 06
- DUNN, W. R.**
Coaxial inverted geometry epitaxial
transistor
ARC-10330 872-10056 01
- DUSCHA, R. A.**
Fabrication of cooled, graphite-lined
structures
LEWIS-11741 872-10593 08
- DYE, R. H.**
Analog table look-up device identifies
unknown terrain
MSC-13816 872-10033 03
- DYER, M. K.**
Technical management techniques for
identification and control of industrial
safety and pollution hazards
M-FS-21883 872-10588 05
- E**
- EGLI, W. H.**
Dynamic valve to supply constant total
thrust to two orifice jets
ARC-10239 872-10120 07
- ELAM, R. C.**
Advanced protective coating for
superalloys
LEWIS-11473 872-10150 04
- ELKINS, W.**
Convuluted fabric for full-pressure
gloves
ARC-10529 872-10215 04
- ELLIOTT, D. H.**
Flexible thermal device
M-FS-21630 872-10612 04
- ELLIS, D. R.**
Integrated flight controller for light
aircraft
ARC-10456 872-10213 06
- ELLISON, A. M.**
Wind tunnel buffet load measuring
technique
ARC-10495 872-10022 06
- ENDICOTT, D. L.**
Improved lip seal for rotating shafts
LEWIS-11602 872-10672 07
- EPSTEIN, P.**
A rapid, precise, reciprocating-
movement color filter system
GSFC-11255 872-10497 07
- ERICKSON, A. L.**
Simple method for forming thin-wall
pressure vessels
ARC-10511 872-10025 08
- ERWIN, L. R.**
A piezoelectrically actuated ball valve
ARC-10338 872-10204 06
- ESMOND, F. G.**
Reliability analysis based on operational
success criteria
ARC-10490 872-10214 09
- F**
- FAIN, D. L.**
Solar experiment alignment system
ARC-10471 872-10020 03
Solar sensor with autocollimator
ARC-10148 872-10192 03
- FAITH, L. E.**
Heat transfer correlations for kerosene
fuels and mixtures and physical properties
for Jet A fuel
LEWIS-11652 872-10742 04
- FALLS, L. W.**
Program for standard statistical
distributions
M-FS-21466 872-10602 09
- FARKAS, A. J.**
Blood pressure measurement and dis-
play system
MSC-13036 872-10334 05
- FARLEY, E. P.**
Plasma calcining of pigment particles
for thermal control coatings
M-FS-21267 872-10320 04
- FARLOW, N. H.**
Analysis of microsize particulates
ARC-10647 872-10565 04
- FEAGANS, P. L.**
Electro-chemical grinding
LANGLEY-10801 872-10744 08
- FEARNEHOUGH, H. T.**
Parallel-plate viscometer
NPO-11387 872-10700 03
- FEDORS, R. F.**
Parallel-plate viscometer
NPO-11387 872-10700 03
- FEINSTEIN, L.**
Nondestructive testing of microtab
welds
ARC-10176 872-10296 02
- FELDSTEIN, C.**
Implantable drug therapy device: A
concept
NPO-11934 872-10708 05
- FENDER, J. R.**
High strength, medium density molded
foam
AEC-10053 872-10235 04
- FERRY, G. V.**
Analysis of microsize particulates
ARC-10647 872-10565 04
- FESLER, L. W.**
Program for determination of radiation
interchange factors
MSC-17563 872-10071 09
- FETTEROLF, R. N.**
High strength high modulus ceramic
fiber
M-FS-21266 872-10592 04
- FEWELL, C. M.**
An improved apochromatic wedge
utilizing optical molecular contact
bonding
GSFC-11082 872-10388 03
- FICKEY, E. W.**
Improved sampling of compressed
gases for condensable hydrocarbon
content
KSC-10304 872-10540 06
- FIET, O.**
Electrodynamic actuators for rocket
engine valves
ARC-10486 872-10009 06
Beryllium thin films for resistor
applications
ARC-10485 872-10021 01
Closed-cycle power supply for fluidic
control systems
ARC-10480 872-10163 06
- FINCANNON, O. J.**
Adjustable locking device
M-FS-21650 872-10459 07
Tandem steerable running gear
M-FS-22012 872-10499 07
- FINK, L. C.**
SINDA, systems improved numerical
differencing analyzer
MSC-13805 872-10736 09
- FITCH, R. C.**
Improved measurement of depth
perception
M-FS-14133 872-10730 05
- FITZGERALD, J. W.**
Cine recording ophthalmoscope
ARC-10399 872-10189 05
Visual sensitivity tester
ARC-10329 872-10203 05
- FLANAGAN, F. M.**
Deep space network
NPO-11562 872-10043 01
- FLANDERS, H. A.**
Prolate spheroidal slosh model for fluid
motion
MSC-13864 872-10182 09
- FLATAU, C.**
A proposed remote manipulator system:
A concept
MSC-14245 872-10733 06

- FLORSCHUETZ, L. W.**
Sonic limitations and startup problems
of heat pipes
AEC-10036 B72-10368 03
- FLUCHER, C. W. G.**
Improved temperature control of liquid
cooling garments
MSC-13917 B72-10281 05
- FLYNN, W. J.**
A valve concept for remote fluid flow
control
M-FS-16097 B72-10400 07
- FORD, F. A.**
The design of an automated verification
of redundant systems
KSC-10702 B72-10295 02
- FORDYCE, J. S.**
Filter cassette for high volume air
sampler
LEWIS-11469 B72-10379 03
- FORESTIERI, A. F.**
Flexible, low-cost silicon solar cell
arrays
LEWIS-11069 B72-10177 02
- FORTINI, A.**
Thermal conductivity and electrical
resistivity of porous materials
LEWIS-11754 B72-10587 04
Joining porous components to solid
metal structures
LEWIS-11259 B72-10754 08
- FRANCINO, L.**
Dry ice plug for hydraulic and pneumatic
pipe flushing
MSC-12548 B72-10496 06
- FRAREY, J. L.**
New detection method for rolling
element and bearing defects
M-FS-21911 B72-10689 06
- FRECHE, J. C.**
High strength alloy for immediate
temperature, 24 to 704 C (75 to 1300
F), applications
LEWIS-11634 B72-10344 04
Advanced alloy design technique: High
temperature cobalt base superalloy
LEWIS-10436 B72-10514 04
- FREUND, T.**
Improved zinc oxide thermal control
coatings
NPO-11139 B72-10711 04
- FRIEDLY, J. C.**
Thermal induced flow oscillations in
heat exchangers for supercritical fluids
M-FS-21262 B72-10598 06
- FRIEDMAN, M.**
A process yields large quantities of
pure ribosome subunits
HQ-10662 B72-10653 05
- FRIEDMAN, O. M.**
Stabilization of lactate dehydrogenase
ARC-10415 B72-10062 05
- FRITZ, J.**
A method of isolating organic compounds
present in water
AEC-10010 B72-10044 04
- FROST, J. D., JR.**
Improved biomedical electrode
MSC-13648 B72-10642 05
- FRYER, T. B.**
Narrowband, crystal-controlled biomedical
telemetry system
ARC-10708 B72-10255 01
An ingestible temperature-transmitter
ARC-10583 B72-10275 01
- FUJIMOTO, H.**
Stable photosensor amplifiers
NPO-11561 B72-10100 01
- FULKERSON, W.**
Mercury in the environment
AEC-10048 B72-10233 05
- FUSARO, R. L.**
Polyimide bonded graphite fluoride: A
new long life solid lubricant coating
LEWIS-11864 B72-10628 04
- G**
- GAHAN, J. W.**
Advanced high-temperature electromagnetic
pump
LEWIS-11283 B72-10537 07
- GAILEY, J. A.**
Titanium alloy stress corrosion cracking
in presence of dinitrogen tetroxide
M-FS-21113 B72-10321 04
- GANGE, R. A.**
Photoemissive coating
M-FS-22003 B72-10638 08
- GARAVAGLIA, A.**
Seat belt restraint system
ARC-10519 B72-10692 06
- GARBER, R. L.**
Dispersion ring reduces injector orifice-
to-orifice flow variation
MSC-15953 B72-10117 07
- GARETT, H.**
Flexible desk top computers using Large
Scale Integration (L.S.I.) chips
M-FS-21277 B72-10112 01
- GARMIRE, E. M.**
Transmission of optical frequencies with
minimal losses
HQ-10541 B72-10389 03
- GARTON, W. P.**
Leak decay method of helium bombard-
ment leak testing
M-FS-24109 B72-10381 06
- GARVIE, C. L.**
Laser beam deflection control: A
concept
MSC-13814 B72-10411 02
- GASKI, J. D.**
Chrysler improved numerical differenc-
ing analyzer for third generation computers
CINDA-3G
MSC-11653 B72-10721 09
- GAVALER, J. R.**
Magnets with stabilized conductors
HQ-10727 B72-10465 03
- GEBBEN, V. D.**
Electronic circuit detects left ventricular
ejection events in cardiovascular system
LEWIS-11581 B72-10512 05
- GEISS, G. R.**
Algorithm for Liapunov stability
analysis
ARC-10498 B72-10023 09
- GELLMAN, L.**
Memory reduction through higher level
language hardware
M-FS-21128 B72-10350 09
- GETSUG, J.**
New meter probes provide protection
from high current power sources at
potentials up to 600 volts
LANGLEY-10804 B72-10455 01
- GIANDOMENICO, A.**
Tubing cutter
NPO-11524 B72-10095 07
- GIBSON, F. W.**
Position indicating, rotating boom
LANGLEY-11202 B72-10066 07
- GIBSON, J. C.**
Nondestructive testing for braze voids
in thin panels by use of special coatings
LANGLEY-10486 B72-10374 08
- GIETZEN, A. J.**
Radioisotope thermionic power supply
for spacecraft
ARC-10438 B72-10212 03
- GILHOUSEN, K. S.**
High speed sequential decoder
ARC-10657 B72-10568 09
- GILLIGAN, J. E.**
Study of in-situ degradation of thermal
control surfaces
M-FS-20892 B72-10336 04
Investigation of environmental effects
on coatings for thermal control
M-FS-21932 B72-10596 04
- GINER, J.**
Al/Cl₂ molten salt battery
HQ-10696 B72-10527 01
- GIORDANO, S. M.**
Noncontaminating technique for making
holes in existing process systems
LEWIS-11595 B72-10385 07
- GIVENS, W. D.**
Systems effectiveness evaluation
program
HQ-10306 B72-10458 09
- GLAWE, G. E.**
Long-term drift of thermocouples at
1600 K
LEWIS-11471 B72-10176 01
A multielement probe for coincident
temperature and pressure measurements
LEWIS-11775 B72-10716 06
- GLENN, D. L.**
Tandem steerable running gear
M-FS-22012 B72-10499 07
- GLICKMAN, S. A.**
Technique for increasing yield of trifluoro-
nitrosomethane-tetrafluoroethylene
lymer
ARC-10566 B72-10418 04
Free-radical solution-polymerization of
trifluoronitrosomethane with
tetrafluoroethylene
ARC-10567 B72-10419 04
- GLOBUS, R. H.**
Rising-plate rheometer
ARC-10524 B72-10026 03
Cryogenic gel flow viscometer
ARC-10523 B72-10180 03
Electromagnetic rheometer
ARC-10525 B72-10416 04
- GLORIA, H. R.**
Ultraviolet and thermally stable polymer
compositions
ARC-10592 B72-10709 04
- GLOSSBRENNER, E. W.**
Inorganic glass ceramic slip rings
M-FS-20711 B72-10313 04
- GODFREY, J. F.**
Quartz crystal microbalance use in
biological studies
NPO-11346 B72-10243 05
- GOINS, W. T.**
A panel space for RFI shielding gaskets:
a concept
MSC-17827 B72-10735 01
- GOLDEN, D. P.**
Automated analysis of blood pressure
measurements (Korotkov sound)
MSC-13999 B72-10756 05

GOLDMAN, L. J.

Design of two-dimensional sharp-edged-throat supersonic nozzle with boundary-layer correction
LEWIS-11636 B72-10070 09

GOLDSBERRY, R. E.

Ultraviolet and thermally stable polymer compositions
ARC-10592 B72-10709 04

GONZALEZ, R.

Leaching of nitroso rubber material removes uncured polymer
MSC-17185 B72-10449 04

Self-aligning, low-pressure sealing poppet valve
MSC-17745 B72-10538 07

GOODWIN, P. S.

Deep space network
NPO-11562 B72-10043 01

GOODYER, M. J.

A stagnation pressure probe for use in supersonic flow
LANGLEY-11139 B72-10543 06

GORDON, S.

Computer program for calculation of complex chemical equilibrium compositions
LEWIS-11714 B72-10718 09

GORENSTEIN, P.

Remote sensing X-ray spectrometer
MSC-13978 B72-10016 03

GORLAND, S. H.

Continuous monitor for gas ratios in a mixture
LEWIS-11095 B72-10229 05

GOUDIE, L. A.

A closed loop cryogenic environment pressure regulating system
MSC-13880 B72-10390 02

GOWDEY, M. V.

New pulsing technique may improve radar ranging systems
ARC-10600 B72-10564 02

GRAMER, J.

Variable boundary II heat conduction
LEWIS-10679 B72-10444 09

GRANT, G. R.

Optical enhancement of sensitivity in laser Doppler velocity systems
ARC-10653 B72-10310 03

GRANT, R. L.

A range expanding signal conditioner
M-FS-21720 B72-10639 02

GRAY, V. H.

Boiler for generating high quality vapor
LEWIS-11345 B72-10135 06

GRAYSON, L.

Mathematical analysis for the performance assessment of space communication parameters, IBM-360 version
GSFC-11523 B72-10675 09

GREBER, I.

Investigations of a turbulent jet in a crossflow
LEWIS-11680 B72-10437 06

GREEB, F.

A proposed remote manipulator system: A concept
MSC-14245 B72-10733 06

GREEN, R. H.

Quartz crystal microbalance use in biological studies
NPO-11346 B72-10243 05

GREENWOOD, T. F.

Study of high altitude plume impingement
M-FS-21414 B72-10601 09

GREGORY, E.

Standard environmental testing practices
NPO-11567 B72-10101 02

GRISAFFE, S. J.

A protective coating for stainless steel
LEWIS-11267 B72-10256 04

GROSS, C.

Insulated-gate field-effect transistor strain sensor
LANGLEY-11012 B72-10731 01

GROTCH, S. L.

Three bit mass spectral search program
NPO-11960 B72-10747 09

GROTTA, H. M.

Erasable holographic medium using cis-trans isomerization
M-FS-22062 B72-10720 03

GROUND, H. K.

Software control for large scale on-board checkout: A concept
MSC-13977 B72-10015 09

GUDERJAHN, C. A.

Alternating current losses in superconducting coils
M-FS-21129 B72-10360 03

GUIST, L. R.

Simple method for forming thin-wall pressure vessels
ARC-10511 B72-10025 08

Bileaf mechanical strain gage
ARC-10303 B72-10197 07

GUNTER, W. D., JR.

Nondispersive infrared analyzer for specific gases in complex mixtures
ARC-10308 B72-10198 03

Optical enhancement of sensitivity in laser Doppler velocity systems
ARC-10653 B72-10310 03

GURSKY, H.

Remote sensing X-ray spectrometer
MSC-13978 B72-10016 03

GUSTAFSON, M. J.

Freon 21 bearing lubrication and coolant system
HQ-10302 B72-10651 06

H**HABORAK, R. C.**

Piezoelectric transducer mosaic
ARC-10509 B72-10014 01

HADLAND, W. O.

Universal inverted flexure
ARC-10345 B72-10122 07

HADLEY, H. C.

High field CdS detector for infrared radiation
LANGLEY-11027 B72-10725 04

HADY, W. F.

High-speed, self-acting shaft seal (circumferential type)
LEWIS-11274 B72-10447 07

HAGGERTY, J.

Floating zone process for drawing small diameter fibers of refractory materials
LEWIS-11380 B72-10491 04

HAGGERTY, J. S.

Improved synthesis of intermetal compounds
HQ-10690 B72-10172 04

HAINES, R. F.

Visual sensitivity tester
ARC-10329 B72-10203 05

HALE, D. V.

Superior cryogenic insulation developed
M-FS-21560 B72-10187 04

Phase-change materials handbook
M-FS-22064 B72-10464 04

HALL, J. B., JR.

Automatic water inventory, collecting, and dispensing unit
LANGLEY-11071 B72-10663 06

HALL, J. M.

Solar sensor with autocollimator
ARC-10148 B72-10192 03

HALL, J. R.

Redundant data management system
M-FS-21831 B72-10589 09

HALL, W. A., JR.

Computer program to generate attitude error equations for a gimbaled platform
M-FS-21991 B72-10624 09

HALLUM, C. E.

Pressure sensitive gas flow meter
ARC-10219 B72-10049 06

HAM, N. C.

Accurate measurement of telemetry performance
NPO-11457 B72-10089 02

HAMMER, J. E.

Simple turbine balancing test apparatus
LEWIS-11658 B72-10377 07

HAMMERMESH, C. L.

Chemical modification of poly(p-phenylene) for use in ablative compositions
ARC-10135 B72-10451 04

HAMMOND, J. L.

Errors in hybrid computers
M-FS-21289 B72-10141 02

HAND, P. J.

Precision voltage regulator
NPO-11502 B72-10092 01

Electronic integrator for gyro rate output voltages
NPO-11499 B72-10555 01

HANSING, A. M.

An improved data transfer and storage technique for hybrid computation
M-FS-22043 B72-10680 02

HANSON, M. P.

Equations to assess the impact resistance of fiber composites
LEWIS-11486 B72-10503 04

HANZEN, G. R.

Analysis of circuits including magnetic cores (MTRAC)
NPO-11494 B72-10724 02

HARPER, F. J.

Polishing is made cheaper by disposable diamond-impregnated abrasive cloth
MSC-14247 B72-10616 08

HARRIS, S. E.

Acousto-optic filter for electronic laser tuning
HQ-10715 B72-10520 03

HARRISON, D. R.

Heart catheter cable and connector
ARC-10406 B72-10200 05

- Diode-quad bridge for reactive transducers and FM discriminators
ARC-10364 B72-10691 01
- HARRISON, S. R.**
Device for measuring electric fields
ARC-10164 B72-10148 03
- HASS, H.**
Research on bearing lubricants for use in a high vacuum
M-FS-22119 B72-10469 04
- HASSLINGER, T. W.**
The design of an automated verification of redundant systems
KSC-10702 B72-10295 02
- HAUBER, C. E.**
Film holder for curved vacuum platen
MSC-14120 B72-10542 07
- HAUGE, G.**
Low distortion automatic phase control circuit
M-FS-21671 B72-10682 02
- HAUSER, R. L.**
Expandable coating cocoon leak detection system
M-FS-21848 B72-10380 06
- HAWKINS, J. W.**
Micro regulating ball valve
ARC-10295 B72-10121 06
- HAYDEN, W. L.**
Compression and R-wave detection of ECG/VCG data
MSC-14126 B72-10391 05
- HAYES, C. D.**
Acoustic spectral analysis and testing techniques
NPO-11554 B72-10341 03
- HAYES, E. G.**
Laboratory leak tester provides high sensitivity
AEC-10042 B72-10240 03
- HEATH, C. A.**
Radioisotope thermionic power supply for spacecraft
ARC-10438 B72-10212 03
- HECKENLAIBLE, R.**
Program to reduce the size of structural matrices
MSC-17619 B72-10625 09
- HECKER, T. P.**
Noncontaminating technique for making holes in existing process systems
LEWIS-11595 B72-10385 07
- HEDRICK, R. W.**
Fill and vent quick disconnect
M-FS-21822 B72-10645 07
- HEFLINGER, L. O.**
Sensitive holographic detection of small aerodynamic perturbations
ARC-10422 B72-10209 03
- HEIER, W. C.**
New compression molding process of thermosetting plastic compounds
LANGLEY-10782 B72-10356 08
- HEIMBUCH, A. H.**
Chemical modification of poly(p-phenylene) for use in ablative compositions
ARC-10135 B72-10451 04
- HEIMLICH, P. F.**
Regenerable metallic oxide systems for removal of carbon dioxide: A concept
ARC-10570 B72-10420 04
- Solid amine compounds as sorbents for carbon dioxide: A concept
ARC-10571 B72-10421 04
- Phosphonium chloride for thermal storage
ARC-10572 B72-10422 04
- HEINEMANN, K.**
Annular objective apertures improve resolution of electron microscopes
ARC-10448 B72-10171 03
- HELFF, J. C.**
Adhesive for aluminum withstands cryogenic temperatures
M-FS-16848 B72-10346 04
- A monostrain test apparatus
M-FS-24221 B72-10679 06
- HENDERSON, M. E.**
A dual-beam actinic light source for photosynthesis research
ARC-10351 B72-10205 05
- HENDRICKS, C. M.**
Breathing-metabolic simulator
HQ-10766 B72-10657 05
- Metabolic simulation chamber
HQ-10776 B72-10658 05
- Drive mechanism for production of simulated human breath
HQ-10777 B72-10659 05
- Temperature and humidity control of simulated human breath
HQ-10778 B72-10660 05
- Simulated breath waveform control
HQ-10779 B72-10661 05
- HENRY, C. S.**
Fluidic ignition detection
M-FS-21498 B72-10158 06
- HENRY, J.**
A magnetic mouse activity meter
HQ-10664 B72-10482 05
- HENRY, J. P.**
A magnetic mouse activity meter
HQ-10664 B72-10482 05
- HERNDON, J. R.**
Analysis of circuits including magnetic cores (MTRAC)
NPO-11494 B72-10724 02
- HERRERA, J. G.**
Continuous-flow variable-density wind tunnel facilities
NPO-11287 B72-10078 06
- HERSHEY, L. M.**
Radio direction finder
NPO-11573 B72-10508 02
- HERSKOWITZ, G. J.**
Analytic procedures for determining dimensional redundancies in electronic devices
HQ-10709 B72-10656 09
- HEYSER, R. C.**
Time-adjusted variable resistor
NPO-11306 B72-10116 01
- Pulse-width-modulated device for precision temperature control
NPO-11407 B72-10507 02
- HILL, J. P., JR.**
Machine finishes balls to high degree of roundness
M-FS-21448 B72-10595 08
- HILL, W. L.**
Adhesive for aluminum withstands cryogenic temperatures
M-FS-16848 B72-10346 04
- A monostrain test apparatus
M-FS-24221 B72-10679 06
- HIRSHFIELD, S. M.**
Initiation of polymerization by tetrabutylammonium p-lithiophenoxide
ARC-10553 B72-10223 04
- HITCHMAN, M. J.**
Real-time pair-feeding of animals
ARC-10302 B72-10298 05
- HOARD, E. G.**
Technical management techniques for identification and control of industrial safety and pollution hazards
M-FS-21883 B72-10588 05
- HOBART, H. F.**
Small turbine-type flowmeters for liquid hydrogen
LEWIS-11535 B72-10331 06
- Use of small turbine-type flowmeters to measure flow in large pipes
LEWIS-11851 B72-10631 06
- An optical quality meter suitable for cryogenic liquids
LEWIS-11814 B72-10686 06
- HOFFLER, G. W.**
Automated analysis of blood pressure measurements (Korotkov sound)
MSC-13999 B72-10756 05
- HOFFMAN, D. G.**
A reusable prepositioned ATP reaction chamber
HQ-10660 B72-10525 05
- HOFFMAN, T. E.**
Mechanically and thermally stable maser cavity resonator
HQ-10790 B72-10523 01
- HOGGATT, J. T.**
Use of thin plastic films at cryogenic temperatures
LEWIS-11047 B72-10038 04
- HOLDEMAN, J. D.**
Airflow distribution control for improved turbine engine performance
LEWIS-11593 B72-10178 07
- HOLDEN, G. G.**
Balanced-bellows spirometer
XAC-01547 B72-10279 05
- HOLDSWORTH, T.**
Automatic lightning location system
AEC-10077 B72-10372 02
- HOLEN, J. T.**
Sensor capsule for diagnosis of gastric disorders
HQ-10767 B72-10531 05
- HOLLAHAN, J. R.**
Rapid evaluation of reverse-osmosis membranes
ARC-10659 B72-10413 04
- Oxygen plasmas used to synthesize superoxides
ARC-10686 B72-10570 04
- Reverse-osmosis membranes by plasma polymerization
ARC-10696 B72-10710 04
- HOLLAND, V. B.**
Circuit permits independent adjustment of gain and offset at constant input impedance
ARC-10348 B72-10057 01
- HOLLECK, G. L.**
Improved operation of rechargeable oxygen electrodes
LEWIS-11619 B72-10479 01
- HOLMES, K. G.**
Circuit controls turn-on current
NPO-11339 B72-10079 01
- HOLMES, R. F.**
Automation of Bosch reaction for CO₂ reduction
M-FS-21674 B72-10666 04

- HOMEYER, W. G.**
Radioisotope thermionic power supply for spacecraft
ARC-10438 B72-10212 03
- HONDA, T. S.**
Vortex servovalve for fluidic or electrical input
ARC-10155 B72-10173 07
- HOOP, J. M.**
Ultrasonic bone densitometer
M-FS-20994 B72-10450 05
Spark ultrasonic transducer
M-FS-21233 B72-10594 04
- HOOPER, T. J.**
Metered oxygen supply aids treatment of domestic sewage
ARC-10024 B72-10557 05
- HOOVER, M. J.**
Phase-change materials handbook
M-FS-22064 B72-10464 04
- HORD, J.**
Cavitation data for hydraulic equipment
LEWIS-11642 B72-10384 07
- HORIUCHI, H. H.**
Electronic integrator for gyro rate output voltages
NPO-11499 B72-10555 01
- HORNBACK, G. L.**
Airlock caution and warning system
M-FS-21576 B72-10467 02
- HORTON, R. F.**
Hydraulic valve lifter remover
M-FS-21377 B72-10110 07
- HOUSTON, M. H.**
Improved laboratory gradiometer can be a field survey instrument
MSC-13980 B72-10001 03
- HOWARD, W. H.**
Weight simulator
ARC-10100 B72-10046 05
Programmed physiological infusion system
ARC-10447 B72-10126 05
- HOWARTH, J. T.**
Flame resistant elastic elastomeric fibers
MSC-13923-4 B72-10005 04
- HOWES, W. L.**
Loudness (annoyance), prediction procedure for steady sounds
LEWIS-11761 B72-10579 05
- HOWSER, L. M.**
Program for the transient response of ablating axisymmetric bodies including the effects of shape change
LANGLEY-11049 B72-10068 09
- HRUBY, R. J.**
Coaxial inverted geometry epitaxial transistor
ARC-10330 B72-10056 01
Nondestructive testing of microtab welds
ARC-10176 B72-10296 02
- HRYNIEWIECKI, E.**
Triangular wheel locomotion mechanism
NPO-11366 B72-10714 06
- HUEBSCHER, R. G.**
Carbon dioxide concentrator
ARC-10245 B72-10194 05
- HUESCHEN, R. M.**
Sterile chamber operation with bio-isolator suit system
LANGLEY-11054 B72-10547 05
- HUGGINS, C. T.**
Solid state television camera has no imaging tube
M-FS-21553 B72-10254 02
- HUGHES, C. T.**
Process for synthesizing and formulating condensed ring polymers
LANGLEY-10423 B72-10473 04
- HUGULEY, J. C.**
A closed loop cryogenic environment pressure regulating system
MSC-13880 B72-10390 02
- HULL, F. E.**
Dual redundant core memory systems
MSC-13993 B72-10261 09
- HUMBERT, J. E.**
Real-time pair-feeding of animals
ARC-10302 B72-10298 05
- HUNIU, S.**
Two-stage coaxial gas compressor
ARC-10426 B72-10210 06
- HURD, W. J.**
Technique minimizes the effects of dropouts on telemetry records
NPO-11421 B72-10088 02
- HUTCHISON, J. J.**
New type of trifunctional alcohol
NPO-10714 B72-10553 04
- I**
- ILES, P. A.**
Oxygen-layer structure improves lithium-doped silicon solar cells
NPO-11403 B72-10085 03
Introduction of lithium into the front surface of solar cells
NPO-11404 B72-10086 02
- IMIG, L. A.**
Strain gage attachment by spot welding reduces the fatigue strength of Ti-6Al-4V, Rene 41, and Inconel X
LANGLEY-10930 B72-10339 04
- IMUS, R. E.**
Low-friction ball-and-socket
NPO-11348 B72-10081 08
Nematic liquid crystals for optical shutters: A concept
NPO-11367 B72-10083 03
Planetary rock corer and drill concepts
NPO-11416 B72-10398 07
- ISHIMOTO, T.**
SINDA, systems improved numerical differencing analyzer
MSC-13805 B72-10736 09
- J**
- JAAX, J. R.**
An efficient prebreathing apparatus for humans during decompression
MSC-14151 B72-10690 05
- JACK, J. R.**
High solar intensity radiometer
LEWIS-11533 B72-10130 03
- JACKSON, C. M., JR.**
Mislift and miss-drag programs
LANGLEY-10932 B72-10153 09
- JACKSON, C. T.**
Overlay board for control consoles
ARC-10007 B72-10191 02
- JACKSON, R. E.**
Boron aluminum composite structures
M-FS-21571 B72-10386 04
- JACOBSON, N. F.**
Multiple reaction mass and isolation system
M-FS-24119 B72-10441 06
- JACQUIER, I. D.**
Mathematical techniques for estimating operational readiness of complex systems
MSC-17694 B72-10335 09
- JAEGER, K.**
Computer program analyzes and monitors electrical power systems (POSIMO)
GSFC-11505 B72-10610 09
- JANUS, J.**
A sonic transducer to detect fluid leaks
KSC-10704 B72-10376 01
- JAUJA, V. W.**
Dispersion ring reduces injector orifice-to-orifice flow variation
MSC-15953 B72-10117 07
- JAWORSKI, W.**
Performance of silicon solar cell assemblies
NPO-11847 B72-10186 01
- JELINEK, D.**
Optimization of fluid line sizes with pumping power penalty IBM-360 computer program
MSC-17930 B72-10722 06
- JENKINS, R. K.**
Improved thermally conducting electron transfer polymers
GSFC-11304 B72-10291 04
- JENNINGS, T. J.**
Low temperature catalytic ignition of hydrogen and oxygen
ARC-10492 B72-10127 03
Comparison of catalyst activity
ARC-10493 B72-10201 04
- JENSEN, K. A.**
Amplifier for signal from thin film transducer
LEWIS-11494 B72-10463 01
- JESCH, C. D.**
Current switch has built-in time delay: A concept
MSC-17324 B72-10453 01
- JESSEP, D. C.**
Techniques for improving reliability of computers
M-FS-21326 B72-10109 02
- JIRBERG, R. J.**
Wide-range nuclear magnetic resonance detector
LEWIS-11513 B72-10478 03
- JOHNSON, D. F.**
Solar sensor with autocollimator
ARC-10148 B72-10192 03
- JOHNSON, E. F.**
Energy absorber uses expanded coiled tube
AEC-10044 B72-10239 06
- JOHNSON, M. D.**
Reliability analysis based on operational success criteria
ARC-10490 B72-10214 09
- JOHNSON, R. C.**
Computer program for natural gas flow through nozzles
LEWIS-11534 B72-10362 09
- JOHNSON, R. L.**
High speed, self-acting, face-contact shaft seal has low leakage and very low wear
LEWIS-11598 B72-10114 07
Computer program for calculating the temperature field of face seals
LEWIS-11110 B72-10483 09

- JOLLY, W. O.**
Acoustic emission used as weld quality monitor
AEC-10018 872-10427 08
- JONES, C. E.**
Snap dynamics
M-FS-21531 872-10265 09
- JONES, C. K.**
Magnets with stabilized conductors
HQ-10727 872-10465 03
- JONES, N. D.**
High-temperature, long-life thyratron
LEWIS-11327 872-10134 01
- JONES, P. A.**
Vibrational transfer functions for complex structures
M-FS-20744 872-10648 09
- JONES, R. J.**
New polyimide polymer has excellent processing characteristics with improved thermo-oxidative and hydrolytic stabilities
LEWIS-11323 872-10175 04
Low-void polyimide resins for autoclave processing
LEWIS-11665 872-10728 04
- JONES, T. B.**
An electrohydrodynamic heat pipe
ARC-10601 872-10251 03
- JONKE, A. A.**
Fluidized-bed combustion reduces atmospheric pollutants
AEC-10085 872-10431 04
- JOSLYN, A. W.**
Boiler for generating high quality vapor
LEWIS-11345 872-10135 06
- JUHASZ, A. J.**
Airflow distribution control for improved turbine engine performance
LEWIS-11593 872-10178 07
Turbulent mixing film cooling correlation
LEWIS-11417 872-10326 07
- JUNK, G. A.**
A method of isolating organic compounds present in water
AEC-10010 872-10044 04
- JUNKIN, B. G.**
Method for nonlinear exponential regression analysis
M-FS-21965 872-10622 09
- K**
- KADRMAS, K. A.**
Self-calibrating remote atmospheric electromagnetic probe and data acquisition system
M-FS-21212 872-10665 03
- KAEMMING, T. A.**
Propulsion sizing program
MSC-14016 872-10605 09
- KAHN, D. R.**
A permeable rotating-wheel solvent extractor
LRL-10033 872-10343 04
- KAISER, R.**
Preparation of stable colloidal dispersions in fluorinated liquids
HQ-10580 872-10529 04
- KAMOTANI, Y.**
Investigations of a turbulent jet in a crossflow
LEWIS-11680 872-10437 06
- KATCHIS, L.**
A differential ECG amplifier with single-ended output
ARC-10411 872-10061 05
Frequency switch keyed oscillator
ARC-10412 872-10124 01
- KATOW, M. S.**
Compensating subreflector for two-reflector antennas: A concept
NPO-11503 872-10093 06
- KATSANIS, T.**
Computer program for quasi-three-dimensional calculation of surface velocities and choking flow for turbomachine blade rows
LEWIS-11635 872-10586 09
- KATZMAN, H.**
Sintered diamond compacts using metallic cobalt binders
HQ-10706 872-10519 04
- KEAFER, L. S., JR.**
A transmitting and reflecting diffuser for ultraviolet light
LANGLEY-10385 872-10611 03
- KEETON, S. C.**
Failure in glass
AEC-10088 872-10364 04
- KELLER, L. B.**
Aluminum foil interconnects for solar cell panels
ARC-10374 872-10058 08
- KELLER, R. A.**
An absorption spectrum amplifier for determining gas composition
HQ-10752 872-10524 03
- KELLY, D. H.**
Projections of scan patterns on human retina
ARC-10181 872-10193 05
Scanning technique for tracking small eye-movements
ARC-10488 872-10220 05
- KELTZ, W. L.**
Adaptive position control loop
ARC-10255 872-10052 02
- KEMME, J. E.**
Sonic limitations and startup problems of heat pipes
AEC-10036 872-10368 03
- KENDALL, R. M.**
Aerotherm chemical equilibrium (ACE) computer program
LEWIS-11722 872-10739 09
- KENDLE, D. W.**
Main tank injection pressurization program
LEWIS-11368 872-10069 09
- KENDRICK, W. P.**
New polyimide polymer has excellent processing characteristics with improved thermo-oxidative and hydrolytic stabilities
LEWIS-11323 872-10175 04
- KENNEDY, B. W.**
Packaging concept for LSI beam lead integrated circuits
M-FS-21374 872-10329 07
Improved universal electrical connector
M-FS-14741 872-10363 01
- KERNER, H.**
Memory reduction through higher level language hardware
M-FS-21128 872-10350 09
- KERNS, Q. A.**
A sensitive image intensifier which uses inert gas
LRL-10024 872-10312 03
- KERSELS, G. J.**
Trace contaminant adsorption and sorbent regeneration in closed-ecological systems
LANGLEY-10681 872-10328 04
- KEUNE, D. L.**
High temperature gallium phosphide rectifiers
LEWIS-11804 872-10673 01
- KIEFLING, L.**
Snap dynamics
M-FS-21531 872-10265 09
- KIELY, E. F.**
Twistable mold for helicopter blades
ARC-10682 872-10432 08
- KIM, M. J.**
Development of chip passivated monolithic complementary MISFET circuits with beam leads
M-FS-22264 872-10696 01
- KING, C. R.**
Simple, reproducible methods for thermal shock testing of brittle materials
NUC-11020 872-10228 06
- KING, H. J.**
Mass separator for low velocity ions
ARC-10375 872-10123 03
- KING, P. H.**
Carbon dioxide concentration indicator
HQ-10582 872-10526 05
- KING, P. V.**
A four-panel enclosure protects from explosion
M-FS-21847 872-10613 06
- KING, R. B.**
Filter cassette for high volume air sampler
LEWIS-11469 872-10379 03
- KIRALY, R. J.**
Aircraft oxygen system
ARC-10247 872-10195 05
Hydrogen eliminator
ARC-10408 872-10208 03
Counter lung
ARC-10248 872-10219 05
- KIRBY, C. E.**
Promotion of dropwise condensation of ethyl alcohol, methyl alcohol, and acetone by polytetrafluoroethylene
LANGLEY-10940 872-10115 04
- KISTLER, C. L.**
Improved photoetching fabrication method
LEWIS-11268 872-10745 08
- KLEBER, C. M.**
Positive fast sealing union connections
LEWIS-11290 872-10133 06
- KLECHKA, E. W.**
A protective coating for stainless steel
LEWIS-11267 872-10256 04
- KLING, H. F.**
Nonflammable potting, encapsulating and/or conformal coating compound
MSC-13499 872-10337 04
- KLINGER, D.**
Optimal read/write memory system components
M-FS-22044 872-10697 01
- KNOELL, A. C.**
Structural design and stress analysis program for advanced composite filament-wound axisymmetric pressure vessels (COMTANK)
NPO-11943 872-10073 09

- KNOLLENBERG, R. G.**
Particle detection with intensified laser beam
HQ-10645 872-10516 03
- KOCH, A. A.**
PTFE films with improved flexibility
NPO-12028 872-10551 04
- KOCHANSKY, M. C.**
Expandable coating cocoon leak detection system
M-FS-21848 872-10380 06
- KOH, J. C. Y.**
Thermal conductivity and electrical resistivity of porous materials
LEWIS-11754 872-10587 04
- KOLBLY, R. B.**
Waveguide switch protector
NPO-11592 872-10705 01
- KOPIA, L. P.**
Optical device for producing color line scan display from monochrome oscilloscope traces
LANGLEY-10896 872-10375 03
A transmitting and reflecting diffuser for ultraviolet light
LANGLEY-10385 872-10611 03
- KORMANYOS, S.**
Particle detection by a light-scattering technique
ARC-10384 872-10160 03
- KOSMAHL, H. C.**
High efficiency collector for microwave tubes
LEWIS-11192 872-10259 03
- KOSMAHL, H. G.**
Technique for refocusing, decompressing, and conditioning spent electron beams
LEWIS-11617 872-10727 03
- KOZMA, A.**
Optimal read/write memory system components
M-FS-22044 872-10697 01
- KRANTZ, D. E.**
Removal of filler material from large high energy formed parts
M-FS-16326 872-10104 06
- KRAUS, G. M.**
Reduction of noise in gyro outputs
NPO-11603 872-10743 06
- KRAUSE, L. N.**
Nonsteady flow-direction measurement
LEWIS-11499 872-10403 06
A multielement probe for coincident temperature and pressure measurements
LEWIS-11775 872-10716 06
- KRAWCZONEK, W. M.**
A reliable liquid helium detector
LEWIS-11487 872-10145 01
- KRIVO, S. J.**
Selecting digital filters
M-FS-20933 872-10156 01
- KRUEGER, P. G.**
Thermal induced flow oscillations in heat exchangers for supercritical fluids
M-FS-21262 872-10598 06
- KUCHTA, F. J.**
Tissue holder for experimental and Demonstration Surgery
LEWIS-11755 872-10630 05
- KUEHN, D. M.**
Oscillation of laser-beam intensity as observed with beam splitters
ARC-10694 872-10572 03
- KUMAR, S.**
High-intensity source of extreme ultraviolet
HQ-10754 872-10528 03
- KURTZ, R. L.**
Hybrid holographic system
M-FS-20074 872-10260 03
Composite mobile system for holographic nondestructive testing
M-FS-21704 872-10351 03
- KURYLO, M. J.**
An absorption spectrum amplifier for determining gas composition
HQ-10752 872-10524 03
- L**
- LABUZU, T. P.**
Effect of the method of process on the control of microbial growth by water activity in foods
MSC-14234 872-10732 05
- LACEY, R. F.**
Hexapole magnet field analysis
GSFC-10995 872-10113 03
- LAD, R. A.**
Electron beam chemistry produces high purity metals
LEWIS-11639 872-10439 04
- LAKES, M. M.**
A stable liquid crystal for electro-optical displays
HQ-10714 872-10746 04
- LAMAR, J. E.**
Vortex-lattice FORTRAN program for estimating subsonic aerodynamic characteristics of complex planforms
LANGLEY-11047 872-10618 09
- LAMBERT, J. W.**
Drive mechanism for production of simulated human breath
HQ-10777 872-10659 05
- LAMERS, M. D.**
Acoustic spectral analysis and testing techniques
NPO-11554 872-10341 03
- LANDEL, R. F.**
Parallel-plate viscometer
NPO-11387 872-10700 03
- LANDES, H. S.**
The thin film microwave iris
LANGLEY-10511 872-10548 02
- LANDES, L. G.**
Wideband wattmeter for instant measurement of real power
LEWIS-11698 872-10737 01
- LANDINGHAM, R. L.**
Improved method for producing metal-reinforced ceramics
AEC-10070 872-10234 04
- LANE, J. W.**
Wide-range dynamic pressure sensor
ARC-10263 872-10196 03
- LARK, R. F.**
Use of thin plastic films at cryogenic temperatures
LEWIS-11047 872-10038 04
- LARSON, R. W.**
Quick, easy to prepare freeze-dried soups
MSC-14003 872-10017 05
- LASALVIA, E. A.**
Loudness (annoyance), prediction procedure for steady sounds
LEWIS-11761 872-10579 05
- LATORRE, V. R.**
Laser frequency modulation with electron plasma
AEC-10079 872-10373 03
- LATTANZI, R. R.**
Improved electrodes for skin contacts
M-FS-21926 872-10698 05
- LAUE, E. G.**
Quartz crystal microbalance use in biological studies
NPO-11346 872-10243 05
- LAUE, T. M.**
Quartz crystal microbalance use in biological studies
NPO-11346 872-10243 05
- LAURENCE, J. C.**
New twisted intermetallic compound superconductor: A concept
LEWIS-11015 872-10282 04
- LAVENDER, A. R.**
Small, low cost, artificial kidney
AEC-10011 872-10371 05
- LAWHITE, E.**
A rapid, precise, reciprocating-movement color filter system
GSFC-11255 872-10497 07
- LAWSON, A. B.**
The weld-brazing metal joining process
LANGLEY-11072 872-10683 08
- LEBAN, M. I.**
Stabilization of porous glass reverse-osmosis membranes
ARC-10646 872-10309 04
Purification of contaminated water by filtration through porous glass
ARC-10655 872-10412 04
- LEE, A. C.**
An economical vent cover
M-FS-20692 872-10348 07
- LEE, C. H.**
Survey of aircraft electrical power systems
LEWIS-11678 872-10383 02
- LEE, H. Q.**
Variable dimension automatic synthesis programs (VASP)
ARC-10616 872-10065 09
- LEE, R. D.**
Improved ultrasonic biomedical measuring apparatus
ARC-10597 872-10695 05
- LEE, S. M.**
Polymeric coatings using electronic excitation
HQ-10698 872-10257 04
- LEE, W. M.**
Evaluating foam heterogeneity
AEC-10046 872-10365 04
- LEE, W. S.**
Reduction of porosity in aluminum weldments
MSC-14198 872-10734 08
- LEFTON, L.**
Interplanetary Trajectories, Encke Method (ITEM)
GSFC-11576 872-10604 09
- LENT, W. E.**
High voltage electrical insulation coating for refractory materials
LEWIS-11479 872-10290 04
- LEON, H. A.**
Real-time pair-feeding of animals
ARC-10302 872-10298 05
- LEONARD, W. H.**
Noncontact torque measurement using stroboscopic techniques
MSC-12282 872-10332 07

- LEROY, M. J., JR.**
Continuous monitor for gas ratios in a mixture
LEWIS-11095 872-10229 05
- LEVIN, H.**
Improved magnesia for thermal control coatings
ARC-10677 872-10424 04
- LEVINE, M. W.**
Mechanically and thermally stable maser cavity resonator
HQ-10790 872-10523 01
A method of eliminating hydrogen maser wall shift
HQ-10663 872-10670 03
- LEVINE, N.**
Interplanetary Trajectories, Encke Method (ITEM)
GSFC-11576 872-10604 09
- LEVINE, S. H.**
Device for measuring electric fields
ARC-10164 872-10148 03
- LEVOE, C. E.**
Zipper-type electrical connectors
NPO-11639 872-10159 01
- LEWICKI, G. W.**
Aluminum nitride insulating films for MOSFET devices
NPO-11859 872-10425 04
Thin-film ultraviolet detector and spectrometer
NPO-11432 872-10701 03
- LEWIS, D. R.**
Chrysler improved numerical differencing analyzer for third generation computers
CINDA-3G
MSC-11653 872-10721 09
- LEWIS, J. R.**
Portable electron beam weld chamber
MSC-17738 872-10338 06
- LEWIS, W. H.**
Nondestructive-test standards for evaluation of fiber-reinforced composites
M-FS-21288 872-10157 04
- LEYSATH, W.**
Neutron radiographic viewing system
M-FS-22024 872-10468 02
- LIBBY, W. F.**
Sintered diamond compacts using metallic cobalt binders
HQ-10706 872-10519 04
- LIEBERMAN, M.**
Silver-chlorine fuel cell: A concept
ARC-10491 872-10221 03
- LINCOLN, K. A.**
Laser mass spectrometer
ARC-10687 872-10571 03
- LINDGREN, J. R.**
Nonmetallic impurities improve mechanical properties of vapor-deposited tungsten
LEWIS-10800 872-10454 04
- LINLOR, W. I.**
Remote measurement of the water content of snowpacks
ARC-10651 872-10567 03
- LIOW, D. W.**
Evaluating foam heterogeneity
AEC-10046 872-10365 04
- LIPOMA, P.**
Vidicon storage tube electrical input/output
MSC-14053 872-10285 02
- LIPPMAN, M.**
Fabrication of carbon film composites for high-strength structures
ARC-10613 872-10423 04
- LISTER, J. L.**
Improved thermally conducting electron transfer polymers
GSFC-11304 872-10291 04
- LITTLE, D. G.**
Technical management techniques for identification and control of industrial safety and pollution hazards
M-FS-21883 872-10588 05
- LIU, T. S.**
Manganese bismuth thin film for large capacity digital memories
M-FS-21246 872-10107 03
- LIU, Y. Y.**
Wideband wattmeter for instant measurement of real power
LEWIS-11698 872-10737 01
- LOCKHART, J. M.**
Metastable atom probe, for measuring electron beam density profiles
M-FS-21593 872-10485 03
- LOEHNER, J. L.**
Novel dielectric reduces corona breakdown in ac capacitors
M-FS-21486 872-10505 01
- LOHWATER, R. K.**
Improved method for reclaiming vacuum diffusion pump oil
LEWIS-11647 872-10511 04
- LONG, H.**
New meter probes provide protection from high current, power sources at potentials up to 600 volts
LANGLEY-10804 872-10455 01
- LORD, H. C.**
Direct analysis of hydrogen/deuterium mixtures: A concept
NPO-11322 872-10244 03
- LOVE, W. L.**
Separation of gas mixtures by centrifugation
ARC-10449 872-10270 03
- LU, P.**
A process yields large quantities of pure ribosome subunits
HQ-10662 872-10653 05
- LUDWIG, L. P.**
High speed, self-acting, face-contact shaft seal has low leakage and very low wear
LEWIS-11598 872-10114 07
High-speed, self-acting shaft seal (circumferential type)
LEWIS-11274 872-10447 07
Computer program for calculating the temperature field of face seals
LEWIS-11110 872-10483 09
- LUTES, G. F., JR.**
Low phase-shift amplifier
NPO-11663 872-10185 01
Broadband RF-distribution amplifier
NPO-11401 872-10245 01
- LYON, W. S.**
Mercury in the environment
AEC-10048 872-10233 05
- MACGLASHAN, W. F., JR.**
Concentric-seating poppet
NPO-11658 872-10704 06
- MACIEL, A. N., JR.**
Indexing film with a fluidic sensor
MSC-14117 872-10501 02
- MACIEL, A., JR.**
Alignment microscope for rotating laser scanner
MSC-14118 872-10435 03
Film handling system for laser scanner/recorder
MSC-14121 872-10539 07
Film holder for curved vacuum platen
MSC-14120 872-10542 07
- MACKEY, R. T., SR.**
Manufacturing contamination prevention handbook
M-FS-19113 872-10394 08
- MACOMBER, J. W.**
High torque bellows seal rotary drive
LEWIS-11813 872-10681 07
- MAKOWSKI, M. J.**
Propellant-powered actuator for gas generators
ARC-10484 872-10008 03
Ferromagnetic-fluid logic devices
ARC-10503 872-10011 06
Hermetic isolation valves
ARC-10505 872-10013 06
- MALACHESKY, P. A.**
Improved operation of rechargeable oxygen electrodes
LEWIS-11619 872-10479 01
- MALCHOW, R. G.**
Airlock caution and warning system
M-FS-21576 872-10467 02
- MALMBERG, P. R.**
Dual field alignment display and control for electron micropattern generator
M-FS-22118 872-10646 01
Two-speed deflection system for electron micropattern generator
M-FS-22117 872-10668 02
- MANASEVIT, H. M.**
Proposed semiconductor film improvement
HQ-10685 872-10438 04
- MANGANARO, J. L.**
Thermal induced flow oscillations in heat exchangers for supercritical fluids
M-FS-21262 872-10598 06
- MANGION, C.**
Ferromagnetic-fluid logic devices
ARC-10503 872-10011 06
Cavitating Venturi sump
ARC-10504 872-10012 06
Hermetic isolation valves
ARC-10505 872-10013 06
Fluidic pressure regulators
ARC-10474 872-10162 06
Closed-cycle power supply for fluidic control systems
ARC-10480 872-10163 06
Interconnections for fluidic circuits
ARC-10481 872-10164 02
Fluidic systems may improve combustion in automotive engines
ARC-10582 872-10250 06
Integrated monopropellant thruster
NPO-12004 872-10502 06
- MANUS, E. A.**
The thin film microwave iris
LANGLEY-10511 872-10548 02
- MARCELLIS, A.**
Functionally terminated liquid nitroso fluorocarbon terpolymers
M-FS-21539 872-10493 04
- MARCH, D. N.**
Automatic lightning location system
AEC-10077 872-10372 02
- MARCUS, B. D.**
Hydrophobic liquid/gas separator for heat pipes
ARC-10656 872-10549 03

M

- MAREK, C. J.**
Turbulent mixing film cooling correlation
LEWIS-11417 B72-10326 07
- MARGASON, R. J.**
Vortex-lattice FORTRAN program for estimating subsonic aerodynamic characteristics of complex planforms
LANGLEY-11047 B72-10618 09
- MARGOSIAN, P. M.**
Improved high voltage insulator for use in vacuum
LEWIS-11401 B72-10181 01
- MARGOZZI, A. P.**
A dual-beam actinic light source for photosynthesis research
ARC-10351 B72-10205 05
- MARKLEY, F. W.**
Small, low cost, artificial kidney
AEC-10011 B72-10371 05
- MARSH, H. E., JR.**
New type of trifunctional alcohol
NPO-10714 B72-10553 04
- MARSHALL, D. L.**
Insolubilized enzymes for food synthesis
ARC-10568 B72-10247 04
Immobilized phosphorylase for synthesis of polysaccharides from glucose
ARC-10680 B72-10550 04
- MARSIK, S. J.**
Electron beam chemistry produces high purity metals
LEWIS-11639 B72-10439 04
Radiation-induced nickel deposits
LEWIS-10965 B72-10456 04
- MARTIN, D. F.**
Standardization and qualification of computer programs for circuit design
M-FS-21537 B72-10142 09
- MARTIN, J. W.**
Improved elastomer for use with oxygen difluoride
ARC-10528 B72-10027 04
- MARTO, P. J.**
Boiler for generating high quality vapor
LEWIS-11345 B72-10135 06
- MASCY, A. C.**
Rapid analysis of electric propulsion missions
ARC-10430 B72-10299 09
- MASERJIAN, J.**
Aluminum nitride insulating films for MOSFET devices
NPO-11859 B72-10425 04
Thin-film ultraviolet detector and spectrometer
NPO-11432 B72-10701 03
- MASLOWSKI, E. A.**
Automatic method of measuring silicon-controlled-rectifier holding current
LEWIS-11898 B72-10752 02
- MASON, D. R.**
Prediction of flow-induced failures of braided flexible hoses and bellows
M-FS-19004 B72-10407 06
- MASSEY, H. S.**
Deflection resistance indicator
M-FS-24010 B72-10401 04
- MASSUCCO, A. A.**
Flame resistant elastic elastomeric fibers
MSC-13923-4 B72-10005 04
- MASTIN, W. C.**
A simple dead-reckoning navigational system
M-FS-21165 B72-10409 02
- MASTROENI, J.**
Particle detection by a light-scattering technique
ARC-10384 B72-10160 03
- MASUBUCHI, K.**
Analysis of thermal stress and metal movement during welding
M-FS-20984 B72-10333 04
- MATSUHIRO, D.**
Seat belt restraint system
ARC-10519 B72-10692 06
- MATSUOKA, T.**
Adhesive for aluminum withstands cryogenic temperatures
M-FS-16848 B72-10346 04
- MAY, C. E.**
Electron beam chemistry produces high purity metals
LEWIS-11639 B72-10439 04
- MAYES, N.**
Functionally terminated liquid nitroso fluorocarbon terpolymers
M-FS-21539 B72-10493 04
- MAYFIELD, W. J.**
Airlock caution and warning system
M-FS-21576 B72-10467 02
- MAZARIS, G. A., JR.**
Thermocouple tape
LEWIS-11072 B72-10515 04
- MAZER, L.**
Topological solution of bilateral switching networks
ARC-10294 B72-10055 01
- MCCBRIDE, B. J.**
Computer program for calculation of complex chemical equilibrium compositions
LEWIS-11714 B72-10718 09
- MCCANN, D. H.**
Overlap diffusion for increasing photo-transistor dynamic range
M-FS-20407 B72-10347 01
- MCCARTHY, C. E.**
Techniques for improving reliability of computers
M-FS-21326 B72-10109 02
- MCCLENAHAN, J. O.**
Optical shutter for use in shock tubes
ARC-10516 B72-10128 03
Photomultiplier blanking circuit
ARC-10593 B72-10561 01
- MCCLENTIC, T. S.**
Program for determination of radiation interchange factors
MSC-17563 B72-10071 09
- MCCLURE, E. R.**
Thermal analog device reduces machining errors
AEC-10080 B72-10237 08
- MCDANAL, A. J.**
Superior cryogenic insulation developed
M-FS-21560 B72-10187 04
- MCDONALD, G. D.**
Fabrication techniques for organic electrolyte battery
AEC-10019 B72-10428 08
- MCDONALD, M. D.**
An economical vent cover
M-FS-20692 B72-10348 07
- MCDUGAL, A. R.**
Squib-operated disconnect
NPO-11330 B72-10713 06
- MCGREW, J. L.**
Internal capillary insulation for cryogenic tanks
LEWIS-11234 B72-10626 06
- MCHENRY, R. J.**
Process for synthesizing and formulating condensed ring polymers
LANGLEY-10423 B72-10473 04
- MCKEE, H. B.**
Turbopump thermodynamic cooling
M-FS-21597 B72-10408 06
- MCKEE, W. D., JR.**
Guidelines for fabrication of hybrid microcircuits
M-FS-21964 B72-10393 01
- MCKENZIE, R. L.**
Diatom infrared gasdynamic laser permits selection of wavelengths
ARC-10370 B72-10206 03
- MCMAHON, W.**
Quick release acoustic sensor holding fixture
MSC-17457 B72-10076 02
A tool for cutting ultra thin slits in metals
KSC-10770 B72-10433 07
- MCNALLY, W. D.**
Program for calculating laminar and turbulent boundary layers in arbitrary pressure gradients
LEWIS-11097 B72-10111 09
FORTRAN program for computing coordinates of circular-arc, single and tandem, turbine and compressor, blade sections on a plane
LEWIS-11237 B72-10405 09
FORTRAN program for generating a two-dimensional orthogonal mesh between two arbitrary boundaries
LEWIS-11863 B72-10753 09
- MCNAMEE, L. P.**
Standardization and qualification of computer programs for circuit design
M-FS-21537 B72-10142 09
- MCWILLIAMS, I. G.**
A compact spectroradiometer for solar simulator measurements
HQ-10683 B72-10327 03
- MEACHAM, R. H.**
Solenoid-operated swing-check valve
XAC-10048 B72-10037 06
- MEAD, G. D.**
Geometric field-line calculations
GSFC-11597 B72-10674 09
- MEADOWS, A. L.**
An absentee monitoring device
KSC-10668 B72-10578 01
- MEALY, G. E.**
Improved high voltage insulator for use in vacuum
LEWIS-11401 B72-10181 01
- MEDWID, D. W.**
Improved silver-zinc battery-terminal seals
LEWIS-11615 B72-10581 06
- MELAMED, L.**
Angular velocity and acceleration meter
LEWIS-11466 B72-10183 06
- MENARD, W. A.**
Improved high-performance shock tube
NPO-11885 B72-10242 03
- MENASHI, W. P.**
Floating zone process for drawing small diameter fibers of refractory materials
LEWIS-11380 B72-10491 04

- MENDENHALL, M. R.**
Prediction of ducted fan performance
ARC-10615 872-10064 09
- MENEGHETTI, J. R.**
Efficient baffle prevents oil backstream-
ing in diffusion pumps
LRL-10025 872-10475 07
- MENICHELLI, V. J.**
Simple non-destructive tests for elec-
troexplosive devices
NPO-11563 872-10315 01
- MERRILL, E. O.**
Source deck compression and update
program (CAPS)
GSFC-11545 872-10619 09
- MERRILL, R. P.**
Trace contaminant adsorption and
sorbent regeneration in closed ecological
systems
LANGLEY-10681 872-10328 04
- MEYER, J. E., JR.**
Gate protective device for SOS array
HQ-10745 872-10755 01
- MEYER, R. R.**
Isogrid structure
M-FS-21567 872-10323 06
- MEYERHOFF, D. E.**
Standardization and qualification of
computer programs for circuit design
M-FS-21537 872-10142 09
- MIDDLETON, R. L.**
Solar powered absorption cycle heat
pump using phase change materials for
energy storage
M-FS-21927 872-10615 06
- MILES, J. H.**
Computer method for identification of
boiler transfer functions
LEWIS-11808 872-10582 09
- MILLAND, J. P.**
Assessment of water pollution by
airborne measurement of chlorophyll
ARC-10648 872-10566 04
- MILLER, C. G.**
Intravenous fluid flow meter concept
for zero gravity environment
MSC-14123 872-10461 05
- MILLER, D. D.**
Improved measurement of depth
perception
M-FS-14133 872-10730 05
- MILLER, E. B.**
Atmospheric density variations related
to internal gravity waves
M-FS-21637 872-10143 03
- MILLER, E. R.**
Conical electromagnetic radiation flux
concentrator
M-FS-21613 872-10147 03
- MILLER, H. M.**
A sensitive image intensifier which uses
inert gas
LRL-10024 872-10312 03
- MILLER, R. L.**
A system for automatic analysis of
blood pressure data for digital computer
entry
LEWIS-11751 872-10632 05
- MILLER, S. A.**
An efficient, simple dialyzer
HQ-10741 872-10522 05
- MILLER, W.**
Fluidic pressure regulators
ARC-10474 872-10162 06
- MILLERON, N.**
A cryopump for cooling objects at a
distance
LRL-10031 872-10314 03
- MILLIGAN, F. G.**
Techniques for improving reliability of
computers
M-FS-21326 872-10109 02
- MILLS, G. P.**
An efficient prebreathing apparatus for
humans during decompression
MSC-14151 872-10690 05
- MILLS, S. M.**
Microbiological surface sampling cart
LANGLEY-11069 872-10395 05
- LANGLEY-11074**
Automatic agar tray inoculation device
LANGLEY-11074 872-10637 05
- MILTZ, P. A.**
Mathematical techniques for estimating
operational readiness of complex
systems
MSC-17694 872-10335 09
- MINKIN, H. L.**
Small turbine-type flowmeters for liquid
hydrogen
LEWIS-11535 872-10331 06
- Use of small turbine-type flowmeters
to measure flow in large pipes**
LEWIS-11851 872-10631 06
- An optical quality meter suitable for
cryogenic liquids**
LEWIS-11814 872-10686 06
- MIRALDI, M. N.**
Watertight low-cost electrical
connector
LEWIS-11552 872-10506 01
- MOFFETT, R. L.**
Synthesis of temperature and solvent-
resistant polymers
M-FS-20848 872-10342 04
- MOLES, W. H.**
A visual-display and storage device
GSFC-10901 872-10647 02
- MONTOYA, O.**
Bondability of RTV silicon rubber
AEC-10026 872-10367 04
- MOORE, B. C.**
Helium leak measurements using CO₂
as a carrier
M-FS-21742 872-10354 03
- MOORE, T. J.**
Joining precipitation-hardened nickel-
base alloys by friction welding
LEWIS-11514 872-10288 08
- MORENO, F. J.**
The design of an automated verification
of redundant systems
KSC-10702 872-10295 02
- MORISON, W. B.**
Breathing-metabolic simulator
HQ-10766 872-10657 05
- Drive mechanism for production of
simulated human breath**
HQ-10777 872-10659 05
- Simulated breath waveform control**
HQ-10779 872-10661 05
- MORRIS, D. E.**
Synthesis of temperature and solvent-
resistant polymers
M-FS-20848 872-10342 04
- MORRIS, R. G.**
Leak test system
M-FS-21788 872-10576 06
- MORRIS, T. D.**
Computer program to generate attitude
error equations for a gimballed platform
M-FS-21991 872-10624 09
- MORRISON, S. R.**
Improved zinc oxide thermal control
coatings
NPO-11139 872-10711 04
- MOSS, A. R.**
Tornado detector and alarm
M-FS-20915 872-10106 01
- MURACA, R. F.**
PTFE films with improved flexibility
NPO-12028 872-10551 04
- Micro-scale crease-and-fold apparatus**
NPO-12029 872-10552 06
- MURPHY, R. S.**
Multipurpose top for liquid helium
Dewar
ARC-10533 872-10302 03
- MUTZBERG, J.**
Linear accelerator: A concept
KSC-10618 872-10636 06

N

- NADY, L. A.**
A permeable rotating-wheel solvent
extractor
LRL-10033 872-10343 04
- NAGLE, W. J.**
Improved silver-zinc battery-terminal
seals
LEWIS-11615 872-10581 06
- NAHAS, J. J.**
A voltage-tunable three-terminal Gunn
device
HQ-10783 872-10518 01
- NEAL, B. H.**
Improved high-temperature gimbal
joint
LEWIS-11705 872-10489 06
- NEAL, E. T.**
A concept for universal pliers
KSC-10768 872-10685 07
- NEFF, J.**
Micro-scale crease-and-fold apparatus
NPO-12029 872-10552 06
- NELSON, B. W.**
Optical alignment of electrodes on
electrical discharge machines
XAC-09489 872-10036 07
- NELSON, R. L.**
Prediction of flow-induced failures of
braided flexible hoses and bellows
M-FS-19004 872-10407 06
- NICELY, H. P., JR.**
Systems effectiveness evaluation
program
HQ-10306 872-10458 09
- NICHOLS, C. D.**
Patient's breath controls comfort
devices
LANGLEY-11138 872-10533 05
- NITZAN, D.**
Analysis of circuits including magnetic
cores (MTRAC)
NPO-11494 872-10724 02
- NOBLIN, J. W.**
Radiological control manual
M-FS-22092 872-10460 03
- NORDEN, B. N.**
Hybrid holographic system
M-FS-20074 872-10260 03
- NORMAN, W. C.**
Technique for producing wind-tunnel
heat-transfer models
ARC-10658 872-10349 08

NORTON, D. H., JR.

Software control for large scale on-board checkout: A concept
MSC-13977 B72-10015 09

O

OBERG, C. L.

Analysis and computer programs to calculate acoustic wave properties of baffled chambers
LEWIS-11529 B72-10577 09

OBLER, H. D.

Automatic air flow control in air conditioning ducts
GSFC-11445 B72-10490 06

OISHI, D. M.

Technique for producing wind-tunnel heat-transfer models
ARC-10658 B72-10349 08

OKEEFE, T. W.

Dual field alignment display and control for electron micropattern generator
M-FS-22118 B72-10646 01

OLCOTT, J. W.

Integrated flight controller for light aircraft
ARC-10456 B72-10213 06

OMURA, M.

Redirecting electromagnetic beams through wide angles
ARC-10602 B72-10307 03

ONEILL, M. J.

Superior cryogenic insulation developed
M-FS-21560 B72-10187 04

Phase-change materials handbook
M-FS-22064 B72-10464 04

ONEILL, R. F.

Variable boundary II heat conduction
LEWIS-10679 B72-10444 09

ORLOWSKI, W. F.

Constant tension device for gravity simulation
M-FS-21618 B72-10466 06

ORR, A. A.

Titanium alloy stress corrosion cracking in presence of dinitrogen tetroxide
M-FS-21113 B72-10321 04

P

PADELT, J. R.

Position indicating, rotating boom
LANGLEY-11202 B72-10066 07

PAIK, W. W.

Quartz crystal microbalance use in biological studies
NPO-11346 B72-10243 05

PALMER, E.

Heart simulator
M-FS-21609 B72-10131 02

PAN, H. M. -Y.

SINDA, systems improved numerical differencing analyzer
MSC-13805 B72-10736 09

PAO, S. P.

Evaluation of jet engine noise
M-FS-21416 B72-10263 03

PAPATHAKOS, L. C.

Air assist fuel nozzle reduces aircraft gas turbine engine emissions at idle operation
LEWIS-11512 B72-10434 07

PARESCHE, E.

High-intensity source of extreme ultraviolet
HQ-10754 B72-10528 03

PARK, C.

Separation of gas mixtures by centrifugation
ARC-10449 B72-10270 03

PARK, J.

Devolatilization of polymer resins
GSFC-11358 B72-10280 04

PARKER, C. S.

Longitudinal friction forces in piping design
M-FS-13754 B72-10103 01

PARKER, J. A.

Fire retardant polyisocyanurate foam
ARC-10280 B72-10269 04

Chemical modification of poly(p-phenylene) for use in ablative compositions
ARC-10135 B72-10451 04

PARKER, R. J.

Common bearing material has highest fatigue life at moderate temperature
LEWIS-11592 B72-10382 04

PARKER, W. G.

Computer program for afterheat temperature distribution for mobile nuclear power plant
LEWIS-11693 B72-10634 09

PATTEN, T. C.

Turbopump thermodynamic cooling
M-FS-21597 B72-10408 06

PATTERSON, W. J.

Synthesis of temperature and solvent-resistant polymers
M-FS-20848 B72-10342 04

PAVLIK, J. B.

Tissue holder for experimental and Demonstration Surgery
LEWIS-11755 B72-10630 05

PECK, R. R.

Graph for locked rotor current
MSC-15703 B72-10075 06

PEDERSON, C. W.

Low distortion automatic phase control circuit
M-FS-21671 B72-10682 02

PEFFLEY, W. M.

Improved magnesia for thermal control coatings
ARC-10677 B72-10424 04

PELLICORI, S. F.

Optical bonding agents for severe environments
ARC-10459 B72-10063 04

PENNY, M. M.

Study of high altitude plume impingement
M-FS-21414 B72-10601 09

PERLMAN, M.

Improved feedback shift register
NPO-10351 B72-10226 01

PETERSON, M. H.

Improved sampling of compressed gases for condensable hydrocarbon content
KSC-10304 B72-10540 06

PETERSON, N. C.

An absorption spectrum amplifier for determining gas composition
HQ-10752 B72-10524 03

PHILIPP, W. H.

Electron beam chemistry produces high purity metals
LEWIS-11639 B72-10439 04

Radiation-induced nickel deposits
LEWIS-10965 B72-10456 04

PHILLIPPS, P. G.

A rapid, precise, reciprocating-movement color filter system
GSFC-11255 B72-10497 07

PIARULLI, V. J.

Effects of nonuniform swash-plate stiffness on coupled blade-control system dynamics and stability
LANGLEY-11068 B72-10749 06

PINSON, G. T.

No-err typing aids
M-FS-15218 B72-10498 07

PIPPEN, D.

Determination of impact sensitivity of materials at high pressures
MSC-13700 B72-10216 07

PLESS, W. M.

Nondestructive-test standards for evaluation of fiber-reinforced composites
M-FS-21288 B72-10157 04

PONTIOUS, H. L.

Deflection resistance indicator
M-FS-24010 B72-10401 04

PONTIUS, H. L.

A monostrain test apparatus
M-FS-24221 B72-10679 06

POOLE, A. P., JR.

Guidelines for fabrication of hybrid microcircuits
M-FS-21964 B72-10393 01

POOLE, J. W.

Advances in induction-heated plasma torch technology
LEWIS-11354 B72-10151 03

POPE, J. M.

An ingestible temperature-transmitter
ARC-10583 B72-10275 01

Protective encapsulation of implantable biotelemetry units
ARC-10514 B72-10301 05

POPPA, H. R.

Annular objective apertures improve resolution of electron microscopes
ARC-10448 B72-10171 03

POTTER, P. D.

Compensating subreflector for two-reflector antennas: A concept
NPO-11503 B72-10093 06

POWARS, C. A.

Aerotherm chemical equilibrium (ACE) computer program
LEWIS-11722 B72-10739 09

POWELL, A. H.

Advanced high-temperature electromagnetic pump
LEWIS-11283 B72-10537 07

POWELL, H. W.

Program to produce horizontal stereographic print maps from Nimbus HRIR data
GSFC-11397 B72-10606 09

POWELL, J. D.

Improved device measures performance of batteries under load
ARC-10252 B72-10051 02

Oxygen pressure control for electrolysis cells
ARC-10250 B72-10074 02

PREISWERK, P. R.

Fabrication of carbon film composites for high-strength structures
ARC-10613 B72-10423 04

PRESLEY, L. L.

Measurement of electron density and temperature in plasmas
ARC-10598 B72-10563 03

PRICE, H.

Convuluted fabric for full-pressure gloves
ARC-10529 872-10215 04

PROZAN, R. J.

Study of high altitude plume impingement
M-FS-21414 872-10601 09

PRYOR, R. L.

A simplified, compact static shift register
HQ-10723 872-10591 02

Q

QUATTRONE, P. D.

Solenoid-operated swing-check valve
XAC-10048 872-10037 06

R

RADER, R. P.

A magnetic mouse activity meter
HQ-10664 872-10482 05

RADYS, R. G.

Pseudo-saturating power converter
NPO-11368 872-10042 01

RAGONESE, L. J.

Development of chip passivated monolithic complementary MISFET circuits with beam leads
M-FS-22264 872-10696 01

RAINWATER, L. L.

Properties of ionization breakdown of air at microwave frequencies and optimization of component dimensions for maximum microwave power
M-FS-21924 872-10316 01

RAMEY, R. L.

The thin film microwave iris
LANGLEY-10511 872-10548 02

RAMIREZ, R. V.

Quick, easy to prepare freeze-dried soups
MSC-14003 872-10017 05

RANGE, C. S.

Cylindrically shaped rope ladder
M-FS-16319 872-10688 07

RANKIN, D. A.

Improved laboratory gradiometer can be a field survey instrument
MSC-13980 872-10001 03

RAUCH, S.

Dry ice plug for hydraulic pneumatic pipe flushing
MSC-12548 872-10496 06

RAY, W. L.

Remote control flare stack igniter for combustible gases
M-FS-21675 872-10352 07

REID, M. S.

Accurate measurement of telemetry performance
NPO-11457 872-10089 02

REINISCH, R. F.

Ultraviolet and thermally stable polymer compositions
ARC-10592 872-10709 04

RENZETTI, N. A.

Deep space network
NPO-11562 872-10043 01

REYBURN, W. W.

A shut-off valve for flexible tubing
M-FS-21731 872-10687 07

RICCITIELLO, S. R.

Fire retardant polyisocyanurate foam
ARC-10280 872-10269 04

RICH, A.

A process yields large quantities of pure ribosome subunits
HQ-10662 872-10653 05

RICHARDSON, R.

An improved aesthesiometer
MSC-13609 872-10032 05

RING, S. A.

Fabrication of large ceramic electrolyte disks
ARC-10320 872-10202 03

RITCH, E. R.

Video information system
M-FS-21711 872-10267 09

ROBELL, A. J.

Trace contaminant adsorption and sorbent regeneration in closed ecological systems
LANGLEY-10681 872-10328 04

ROBERT, J. J.

Urban air pollution dispersion model
AEC-10004 872-10003 03

ROBERTSON, J. B.

High field CdS detector for infrared radiation
LANGLEY-11027 872-10725 04

ROCKOWER, B.

New full-complement ball bearing lubrication technique
MSC-13850 872-10174 07

ROEBELEN, G.

Cell for electrolysis of water vapor
ARC-10521 872-10166 03

RONE, K. Y.

Computer program to generate attitude error equations for a gimbaled platform
M-FS-21991 872-10624 09

ROSCOE, J. S.

Development of a polyimide for use as a temperature and solvent resistant sealant
M-FS-21325 872-10262 04

ROSE, A. L.

Leak test system
M-FS-21788 872-10576 06

ROSELLI-LORENZINI, F. G.

Gas leak-detection system
NPO-11405 872-10087 03

ROSENBLUM, L.

Filter cassette for high volume air sampler
LEWIS-11469 872-10379 03

ROSENLIB, J. W.

A brushless dc spin motor for momentum exchange altitude control
M-FS-14952 872-10448 02

ROSENTHAL, L. A.

Simple non-destructive tests for electroexplosive devices
NPO-11563 872-10315 01

ROSITANO, S. A.

Visual sensitivity tester
ARC-10329 872-10203 05

ROSS, R. G., JR.

Performance of silicon solar cell assemblies
NPO-11847 872-10186 01

ROSSER, R. W.

Polyimide foams provide thermal insulation and fire protection
ARC-10464 872-10300 04

ROSTAFINSKI, W.

Indefinite integrals of products of some exponential and trigonometric functions
LEWIS-11493 872-10225 09

ROTHSCHILD, D. S.

Algorithm for Liapunov stability analysis
ARC-10498 872-10023 09

ROWLEY, J. C.

Simple, reproducible methods for thermal shock testing of brittle materials
NUC-11020 872-10228 06
Repeatable method of thermal stress fracture test of brittle materials
NUC-11019 872-10258 06

ROWLEY, P. D.

Measurement of electron density and temperature in plasmas
ARC-10598 872-10563 03

RUPERT, J. G.

Reduction of noise in gyro outputs
NPO-11603 872-10743 06

RUSK, S. J.

Pulse excitation of bolometer bridges
ARC-10292 872-10054 01

RUSSELL, K. J.

Optimization technique for problems with an inequality constraint
ARC-10522 872-10222 09

RUSSELL, T. E.

Computer program for calculating the temperature field of face seals
LEWIS-11110 872-10483 09

RUSSELL, W. A.

A range expanding signal conditioner
M-FS-21720 872-10639 02

RYSKIEWICZ, R. S.

Boron-10 loaded inorganic shielding material
M-FS-22280 872-10740 04

S

SABELMAN, E. E.

Piezoelectric actuator uses sequentially-excited multiple elements: A concept
NPO-11527 872-10096 01
Ferrofluidic solenoid with axial and radial displacement
NPO-11738 872-10241 06
Thermal-powered reciprocating pump
NPO-11417 872-10723 06

SACK, L. E.

Prediction of flow-induced failures of braided flexible hoses and bellows
M-FS-19004 872-10407 06

SAFRONSKI, S. G.

Water impact loads
M-FS-21955 872-10621 09

SALVINSKI, R. J.

Zero-leakage valves
ARC-10506 872-10024 06

SANDERS, D. H.

Water impact loads
M-FS-21955 872-10621 09

SANDLER, H.

Heart catheter cable and connector
ARC-10406 872-10200 05

An ingestible temperature-transmitter
ARC-10583 872-10275 01

SANDROCK, G. D.

Advanced alloy design technique: High temperature cobalt base superalloy
LEWIS-10436 872-10514 04

- SANGER, N. L.**
Computer programs for the design of liquid-to-liquid jet pumps
LEWIS-11679 B72-10584 09
- SAUER, T. H.**
Parallel-plate viscometer
NPO-11387 B72-10700 03
- SAUNDERS, W. S.**
Position indicating, rotating boom
LANGLEY-11202 B72-10066 07
- SAWYER, W. C.**
Mislift and miss-drag programs
LANGLEY-10932 B72-10153 09
- SCHAAB, C. K.**
Halogenation of microcapsule walls
ARC-10410 B72-10161 04
- SCHAEFFER, D. H.**
Irradiation of MOS-FET devices to provide desired logic functions
GSFC-11061 B72-10719 01
- SCHAEFFER, G. L.**
High noise immunity one shot
ARC-10137 B72-10047 01
- SCHER, M. L.**
A range expanding signal conditioner
M-FS-21720 B72-10639 02
- SCHERBA, E. S.**
Quick release acoustic sensor holding fixture
MSC-17457 B72-10076 02
- SCHUEYERMAN, R. J.**
Unsupported thin film beam splitter
GSFC-10525 B72-10471 02
- SCHIESSER, R. J.**
Sputter etching of hemispherical bearings
HQ-10712 B72-10534 08
- SCHLOSS, A. I.**
Peak-power-point monitor for solar panel
NPO-11708 B72-10694 02
- SCHMELTZER, R. A.**
Analysis and computer programs to calculate acoustic wave properties of baffled chambers
LEWIS-11529 B72-10577 09
- SCHMIDT, L. F.**
Wide angle solar sensor
NPO-11341 B72-10080 01
- SCHMIT, F. M.**
Manganese bismuth thin film for large capacity digital memories
M-FS-21246 B72-10107 03
- SCHOBBER, R. C.**
Crystal-controlled multivibrator
NPO-11627 B72-10155 01
- SCHRADER, M.**
Patient's breath controls comfort devices
LANGLEY-11138 B72-10533 05
- SCHUBERT, F. H.**
Water cavity degasser for electrolysis cells
ARC-10244 B72-10246 03
- SCHUERCH, H. U.**
Thermally stable structural framework
ARC-10612 B72-10252 08
- SCHUSTER, S. E.**
Redundancy approaches in bubble domain memories
M-FS-21915 B72-10643 01
- SCHWARTZ, H. W.**
A piezoelectrically actuated ball valve
ARC-10338 B72-10204 06
- SCHWARTZ, R. J.**
A voltage-tunable three-terminal Gunn device
HQ-10783 B72-10518 01
- SCHWARTZ, S.**
Aluminum foil interconnects for solar cell panels
ARC-10374 B72-10058 08
- SCHWINGHAMER, R. J.**
Impact sensitivity of materials in contact with liquid and gaseous oxygen at high pressure
M-FS-21930 B72-10476 06
- SCOTT, H.**
Water purification by reverse osmosis using heterocyclic polymer membranes
LANGLEY-10514 B72-10230 04
- SCOTT, J. C.**
Halogenation of microcapsule walls
ARC-10410 B72-10161 04
- SCOTT, J. H.**
Gate protective device for SOS array
HQ-10745 B72-10755 01
- SCOTT, P. F.**
Acoustical analysis system
GSFC-11087 B72-10751 02
- SCOTT, R. W.**
Bonding titanium to Rene 41 alloy
ARC-10311 B72-10041 08
- SCROGHAM, K. G.**
Method of determining thermal conductivity in multi-layer insulation systems
M-FS-20213 B72-10154 03
- SCULLIN, V. J.**
Chemical kinetics computer program for static and flow reactions
LEWIS-11467 B72-10580 04
- SEALY, J. R.**
Precision machining of steel decahedrons
M-FS-21361 B72-10597 07
- SECKEL, E.**
Integrated flight controller for light aircraft
ARC-10456 B72-10213 06
- SEIDENBERG, B.**
Devolatilization of polymer resins
GSFC-11358 B72-10280 04
- SELLMEYER, D. J.**
Magnetic-doped alloys with very large Seebeck coefficients
M-FS-21410 B72-10318 04
- SERAFINI, T. T.**
Equations to assess the impact resistance of fiber composites
LEWIS-11486 B72-10503 04
- SEWARD, H. H.**
A compact spectroradiometer for solar simulator measurements
HQ-10683 B72-10327 03
- SEYMOUR, D.**
Study of high altitude plume impingement
M-FS-21414 B72-10601 09
- SHAW, S. A.**
Optical enhancement of sensitivity in laser Doppler velocity systems
ARC-10653 B72-10310 03
- SHDO, J. G.**
Use of thin plastic films at cryogenic temperatures
LEWIS-11047 B72-10038 04
- SHIMADA, K.**
Compensation of voltage drops in solid-state switches used with thermoelectric generators
NPO-11388 B72-10138 01
- SHIMIZU, H.**
Isotropic pyrolytic carbons
ARC-10532 B72-10029 04
- SHIPLEY, J. W.**
Acoustic spectral analysis and testing techniques
NPO-11554 B72-10341 03
- SHLOSINGER, A. P.**
Restartable heat pipe
ARC-10198 B72-10188 03
- SHULTS, W. D.**
Mercury in the environment
AEC-10048 B72-10233 05
- SHUMWAY, R. A.**
Propellant feed systems transients
MSC-17848 B72-10677 06
- SIDIK, S. M.**
Optimizing designs of two-level factorial experiments given partial prior information (NAMER)
LEWIS-11708 B72-10726 09
- SIEGMAN, A. E.**
Enhanced Lamb dip for absolute laser frequency stabilization
HQ-10695 B72-10481 02
- SILBERMAN, E.**
Hydraulic modeling of heat dispersion in large lakes
AEC-10003 B72-10039 03
- SILVERMAN, H. P.**
Metered oxygen supply aids treatment of domestic sewage
ARC-10024 B72-10557 05
- SIMONSON, M. R.**
Reduction of fan noise: A concept
ARC-10312 B72-10040 06
- SLINEY, H. E.**
Polyimide bonded graphite fluoride: A new long life solid lubricant coating
LEWIS-11864 B72-10628 04
- SLUSSER, R. A.**
Acoustic spectral analysis and testing techniques
NPO-11554 B72-10341 03
- SMART, W.**
High-temperature ceramic-to-ceramic seals
ARC-10319 B72-10199 04
- SMITH, A. M.**
Oxygen reclamation with solid oxide electrolytes
ARC-10487 B72-10273 03
- SMITH, A. M.**
A simplified, compact static shift register
HQ-10723 B72-10591 02
- SMITH, D. G.**
Covalent bonding of antibodies of polystyrene latex beads: A concept
MSC-13906 B72-10006 05
- SMITH, E. G.**
Improved system for measuring speed of rotating machinery
ARC-10413 B72-10179 07
- SMITH, H. J.**
Potentiometer, constant tension and lubrication device
KSC-10723 B72-10541 02
- SMITH, J. R., JR.**
Ear oximeter-transducer monitors four physiological responses
XAC-05422 B72-10224 05
- SMITH, J. R., JR.**
Balanced-bellows spirometer
XAC-01547 B72-10279 05

- SMITH, P. J.**
Computer program for fitting low-order polynomial splines by method of least squares
LEWIS-11651 B72-10585 09
- SNIDER, W. E.**
Improved silver-zinc battery-terminal seals
LEWIS-11615 B72-10581 06
- SNOWDEN, R. H.**
Portable beveling tool
M-FS-16863 B72-10678 07
- SONNENBERG, H.**
Advanced infrared photomultiplier
M-FS-20941 B72-10152 03
- SOURS, W. P.**
Self-deploying boom
GSFC-10566 B72-10574 07
- SPAIN, I. L.**
Magnetometer uses bismuth-selenide
LEWIS-11632 B72-10629 03
- SPALVINS, T.**
Ion plating seals microcracks or porous metal components
LEWIS-11657 B72-10397 04
- SPANGLER, S. B.**
Prediction of ducted fan performance
ARC-10615 B72-10064 09
- SPENCER, E. O.**
Low cost anti-galling bushings
LEWIS-11724 B72-10359 08
- SPISZ, E. W.**
High solar intensity radiometer
LEWIS-11533 B72-10130 03
High intensity solar cell radiometer
LEWIS-11549 B72-10480 01
Improved transmittance measurement with a magnesium oxide coated integrating sphere
LEWIS-11840 B72-10717 04
- SPURLIN, H. W.**
Program to reduce the size of structural matrices
MSC-17619 B72-10625 09
- STALLCOP, J.**
Measurement of electron density and temperature in plasmas
ARC-10598 B72-10563 03
- STASSINOPOULOS, E. G.**
Geometric field-line calculations
GSFC-11597 B72-10674 09
- STEFAN, H.**
Hydraulic modeling of heat dispersion in large lakes
AEC-10003 B72-10039 03
- STEMMLE, J. T.**
Method to determine vented electrochemical cell quality
GSFC-11216 B72-10396 04
- STEPHENSON, B.**
A reliable liquid helium detector
LEWIS-11487 B72-10145 01
- STERLZRIED, C. T.**
Accurate measurement of telemetry performance
NPO-11457 B72-10089 02
- STERN, D.**
A brushless dc spin motor for momentum exchange attitude control
M-FS-14952 B72-10448 02
- STEVENSON, F. R.**
An empirical relationship for the penetration of 1 to 3 MeV electrons
LEWIS-11495 B72-10144 04
- STEWART, C. H.**
Frequency-to-amplitude converter: A concept
MSC-12395 B72-10729 01
- STOKER, J.**
Standard environmental testing practices
NPO-11567 B72-10101 02
- STONE, G. R.**
Thermal control for storage of cryogenic propellants in a common-bulkhead tank: A concept
ARC-10558 B72-10276 03
Safe transport of diborane in a dual refrigerant system: A concept
ARC-10559 B72-10277 03
Thermal control for storage of cryogenic propellants in a multiple-tank system: A concept
ARC-10560 B72-10278 03
- STRADLING, J.**
Determination of impact sensitivity of materials at high pressures
MSC-13700 B72-10216 07
- STRAND, J. N.**
Wind trajectory tracing for air pollution studies (AIRPOL)
NPO-11892 B72-10072 09
FORTRAN manpower account program
NPO-11973 B72-10623 09
- STREET, A. B.**
Wind trajectory tracing for air pollution studies (AIRPOL)
NPO-11892 B72-10072 09
- STUBBS, V. R.**
Fabrication of cooled, graphite-lined structures
LEWIS-11741 B72-10593 08
- STURMAN, J. C.**
Wide-range nuclear magnetic resonance detector
LEWIS-11513 B72-10478 03
- SULLIVAN, O.**
Integrated multi-path program analysis and cost technique (IMPACT)
M-FS-21880 B72-10676 09
- SUMMERS, R. L.**
Nonsteady flow-direction measurement
LEWIS-11499 B72-10403 06
- SUNSHINE, R. A.**
Gate protective device for insulated gate field-effect transistors
M-FS-21626 B72-10149 01
- SUTTON, J. G.**
Regenerable metallic oxide systems for removal of carbon dioxide: A concept
ARC-10570 B72-10420 04
Solid amine compounds as sorbents for carbon dioxide: A concept
ARC-10571 B72-10421 04
Phosphonium chloride for thermal storage
ARC-10572 B72-10422 04
- SWENSON, C. A.**
Low temperature scale for a 1 to 20 degree Kelvin region
AEC-10007 B72-10146 03
- SWIGERT, P.**
Computer program draws three-dimensional surfaces
LEWIS-10482 B72-10253 09
- SWORD, A.**
Miniature intermittent contact switch
ARC-10450 B72-10271 01
Miniature intermittent contact switch
ARC-10450 B72-10452 01
- SZOKE, A.**
A bi-stable optical device
HQ-10701 B72-10655 03
- T**
- TAKAHASHI, T. H.**
Magnet-wire wrapping tool for integrated circuits
NPO-11815 B72-10426 07
- TALBOOM, F. P.**
Advanced protective coating for superalloys
LEWIS-11473 B72-10150 04
- TAMURA, T.**
Phosphorus in water systems
AEC-10049 B72-10429 05
- TATGE, R. B.**
Acoustical analysis system
GSFC-11087 B72-10751 02
- TAYLOR, A. C.**
Technical management techniques for identification and control of industrial safety and pollution hazards
M-FS-21883 B72-10588 05
- TAYLOR, F. W.**
Program to determine radiating, non-adiabatic, inviscid flow over a blunt body by the method of integral relations
LANGLEY-11048 B72-10067 09
- TAYLOR, W. E.**
Slot configuration for axial-flow turbo-machinery blades
LEWIS-11572 B72-10484 07
- TAYNAL, J. D.**
Advanced infrared photomultiplier
M-FS-20941 B72-10152 03
- TEITELBAUM, B. R.**
A piezoelectrically actuated ball valve
ARC-10338 B72-10204 06
- TENER, W. M.**
Overflow sensor for cryogenic-fluid vessels
NPO-10619 B72-10554 03
- TENOSO, H. J.**
Covalent bonding of antibodies of polystyrene latex beads: A concept
MSC-13906 B72-10006 05
- TEPPER, E. H.**
Regenerable metallic oxide systems for removal of carbon dioxide: A concept
ARC-10570 B72-10420 04
Solid amine compounds as sorbents for carbon dioxide: A concept
ARC-10571 B72-10421 04
Phosphonium chloride for thermal storage
ARC-10572 B72-10422 04
- THOMAS, D. F., JR.**
Quick-donning backpack harness
LANGLEY-10102 B72-10641 05
- THOMAS, G. M.**
Helium window for shock-tube monochromators
NPO-11852 B72-10556 03
- THOMAS, R. D.**
Thermocouple tape
LEWIS-11072 B72-10515 04
- THOMPSON, L. G. D.**
Improved laboratory gradiometer can be a field survey instrument
MSC-13980 B72-10001 03

THOMPSON, L. L.

PERSONAL AUTHOR INDEX

THOMPSON, L. L.

Frequency-wavelength calculator with table of dielectric properties
GSFC-11200 B72-10472 03

THOMPSON, L. R.

Chrysler improved numerical differencing analyzer for third generation computers
CINDA-3G
MSC-11653 B72-10721 09

THOMPSON, W. W.

Suppressants for lowering propellant binder burning rate
ARC-10563 B72-10560 04

TINKHAM, J.

Pulsed high-power arc heater with improved cathode and triggering mechanism
ARC-10173 B72-10048 03

TOLSON, B. A.

A cable stabilizer for outdoor elevators
KSC-10513 B72-10283 07

TOMA, J.

Filter cassette for high volume air sampler
LEWIS-11469 B72-10379 03

TOMBS, N. C.

Protective encapsulation of implantable biotelemetry units
ARC-10514 B72-10301 05

TOMPKINS, S. S.

Program for the transient response of ablating axisymmetric bodies including the effects of shape change
LANGLEY-11049 B72-10068 09

TOWNES, C. H.

Transmission of optical frequencies with minimal losses
HQ-10541 B72-10389 03

TOWNSEND, D. P.

Lubricant selection for gear designers
LEWIS-11483 B72-10136 04

TROMBKA, J.

Remote sensing X-ray spectrometer
MSC-13978 B72-10016 03

TRUE, H. C.

Ejector nozzle with massive blowing
ARC-10621 B72-10693 06

TUEY, R. C.

A linear programming manual
HQ-10743 B72-10671 09

TULISIAK, G.

Joining porous components to solid metal structures
LEWIS-11259 B72-10754 08

TUMULTY, W. T.

Self-deploying boom
GSFC-10566 B72-10574 07

TURNER, J. W.

Very high speed direct-readout, control and recording system
M-FS-20658 B72-10442 02

TYAGI, R. C.

High field CdS detector for infrared radiation
LANGLEY-11027 B72-10725 04

U

UGIANSKY, R. J.

Right angle mounted cold trap
GSFC-11323 B72-10436 06

ULRICH, G. W.

Latch mechanism
M-FS-21606 B72-10457 08

V

VALINSKY, J. P.

Remote weighing device
M-FS-21556 B72-10325 07

VANBIBBER, L. E.

Computer program for afterheat temperature distribution for mobile nuclear power plant
LEWIS-11693 B72-10634 09

VANBIENE, F.

Standard environmental testing practices
NPO-11567 B72-10101 02

VANCO, M. R.

Design of two-dimensional sharp-edged-throat supersonic nozzle with boundary-layer correction
LEWIS-11636 B72-10070 09

VANDERLUGT, A.

Optimal read/write memory system components
M-FS-22044 B72-10697 01

VANDERWALL, E. M.

Rising-plate rheometer
ARC-10524 B72-10026 03

ARC-10523

Cryogenic gel flow viscometer
B72-10180 03

Liquid methane gelled with methanol and water reduces rate of nitrogen absorption
LEWIS-11574 B72-10330 06

VANVLEET, R. N.

Interferometer using RF switching matrix
GSFC-11051 B72-10462 01

VARGA, J. E.

Guidelines for fabrication of hybrid microcircuits
M-FS-21964 B72-10393 01

VARGO, D. J.

Tissue holder for experimental and Demonstration Surgery
LEWIS-11755 B72-10630 05

VAUGHAN, R. W.

New polyimide polymer has excellent processing characteristics with improved thermo-oxidative and hydrolytic stabilities
LEWIS-11323 B72-10175 04

Low-void polyimide resins for autoclave processing
LEWIS-11665 B72-10728 04

VAVRA, M. H.

Simple turbine balancing test apparatus
LEWIS-11658 B72-10377 07

VEIGEL, N. D.

Dispersion-strengthened chromium alloy
LEWIS-10982 B72-10378 04

VERMILLION, C. M.

A simple, efficient resistance soldering apparatus
GSFC-10913 B72-10649 08

VESSOT, R. F. C.

Mechanically and thermally stable maser cavity resonator
HQ-10790 B72-10523 01

A method of eliminating hydrogen-maser wall shift
HQ-10863 B72-10670 03

VINCENT, D. N.

Chemical modification of poly(p-phenylene) for use in ablative compositions
ARC-10135 B72-10451 04

VOGE, H. H.

Low temperature catalytic ignition of hydrogen and oxygen
ARC-10492 B72-10127 03

Comparison of catalyst activity
ARC-10493 B72-10201 04

VOGEL, C. E.

Advances in induction-heated plasma torch technology
LEWIS-11354 B72-10151 03

VONROSENBERG, D. U.

Numerical solution of potential flow problems in terms of flux components
M-FS-21751 B72-10867 09

VOTH, R. O.

Cavitation data for hydraulic equipment
LEWIS-11642 B72-10384 07

VYKUKAL, H. C.

Space suit may have orthotic applications
ARC-10275 B72-10297 05

Restraint and locomotion aid
ARC-10153 B72-10558 06

W

WADIA, A. B.

Techniques for improving reliability of computers
M-FS-21326 B72-10109 02

WALLACE, R. A.

Mercury in the environment
AEC-10048 B72-10233 05

WALLACE, S. D.

Flexible thermal device
M-FS-21630 B72-10612 04

WALLS, B. F.

A simple dead-reckoning navigational system
M-FS-21165 B72-10409 02

WALSH, T. M.

Interferometric rotation sensor
ARC-10278 B72-10274 03

WANG, E. S. J.

Baffle to confine glow discharge in ion pump
M-FS-21575 B72-10324 03

WANG, S. C.

Enhanced Lamb dip for absolute laser frequency stabilization
HQ-10695 B72-10481 02

WANG, W. S.

Two-stage coaxial gas compressor
ARC-10426 B72-10210 06

Miniature high pressure regulator
ARC-10428 B72-10211 07

WARDLE, M. D.

Quartz crystal microbalance use in biological studies
NPO-11346 B72-10243 05

WARFIELD, R. L.

Pressure-probe assembly for wind tunnels
ARC-10569 B72-10248 03

WARR, R. E.

Development of chip passivated monolithic complementary MISFET circuits with beam leads
M-FS-22264 B72-10696 01

WARSHAWSKY, I.

Small turbine-type flowmeters for liquid hydrogen
LEWIS-11535 B72-10331 06

- WATERS, W. J.**
High strength alloy for immediate temperature, 24 to 704 C (75 to 1300 F), applications
LEWIS-11634 872-10344 04
- WEAVER, E. C.**
Assessment of water pollution by airborne measurement of chlorophyll
ARC-10648 872-10566 04
- WEAVER, E. L.**
A tool for measuring elevator cable tension
KSC-10708 872-10509 07
- WEBB, J. A., JR.**
Electronic circuit detects left ventricular ejection events in cardiovascular system
LEWIS-11581 872-10512 05
- WEBBON, B. W.**
Space-suit carbon dioxide absorption system: A concept
ARC-10546 872-10168 05
- WEBSTER, J. A.**
Synthesis of temperature and solvent-resistant polymers
M-FS-20848 872-10342 04
Thermally resistant polymers for fuel tank sealants
M-FS-21232 872-10358 04
- WEIL, B. L.**
Nondestructive-test standards for evaluation of fiber-reinforced composites
M-FS-21288 872-10157 04
- WEILBACH, A. O.**
Rotary shutter mechanism contains optical elements
GSFC-11244 872-10387 03
- WEINBERG, A. F.**
Nonmetallic impurities improve mechanical properties of vapor-deposited tungsten
LEWIS-10800 872-10454 04
- WEINER, L.**
Two-axis leveling detector system
M-FS-21344 872-10392 02
- WEISSBART, J.**
Oxygen reclamation with solid oxide electrolytes
ARC-10487 872-10273 03
- WELIKY, N.**
Metered oxygen supply aids treatment of domestic sewage
ARC-10024 872-10557 05
- WELLMAN, J. B.**
Transonic divider for gas chromatograph effluents
NPO-11479 872-10706 03
- WEN, L.**
Performance of silicon solar cell assemblies
NPO-11847 872-10186 01
- WENCKUS, J. F.**
Improved synthesis of intermetal compounds
HQ-10690 872-10172 04
Floating zone process for drawing small diameter fibers of refractory materials
LEWIS-11380 872-10491 04
- WESTBROOK, R. M.**
Narrowband, crystal-controlled biomedical telemetry system
ARC-10708 872-10255 01
- WESTFALL, L. J.**
Floating zone process for drawing small diameter fibers of refractory materials
LEWIS-11380 872-10491 04
- WHEELER, A.**
Trace contaminant adsorption and sorbent regeneration in closed ecological systems
LANGLEY-10681 872-10328 04
- WHETSTONE, W. D.**
Snap dynamics
M-FS-21531 872-10265 09
- WHITAKER, D.**
Determination of impact sensitivity of materials at high pressures
MSC-13700 872-10216 07
- WHITE, J. S.**
Variable dimension automatic synthesis programs (VASP)
ARC-10618 872-10065 09
- WHITING, E. E.**
Increasing the response of PIN photodiodes to the ultraviolet
ARC-10274 872-10053 03
- WHITLOCK, F. H.**
Interplanetary Trajectories, Encke Method (ITEM)
GSFC-11576 872-10604 09
- WIEDEKAMP, K. E.**
Use of thin plastic films at cryogenic temperatures
LEWIS-11047 872-10038 04
- WIKER, G. A.**
Soldering iron temperature indicator
NPO-11545 872-10098 02
- WILKENING, H. D.**
Program to determine space vehicle response to wind turbulence
M-FS-21614 872-10410 09
- WILKIN, R. B.**
An improved gas extraction furnace
MSC-14138 872-10544 04
- WILKINS, J. R.**
Microbiological surface sampling cart
LANGLEY-11069 872-10395 05
Automatic agar tray inoculation device
LANGLEY-11074 872-10637 05
- WILKINSON, M. C.**
A study of radiation environment in space and its biological effects
HQ-10798 872-10662 03
- WILLIAMS, B. A.**
A thermocouple thermode for small animals
ARC-10550 872-10559 05
- WILLIAMS, C. F.**
Carbon dioxide concentrator
ARC-10245 872-10194 05
- WILLIAMS, E. F.**
Automatic water inventory, collecting, and dispensing unit
LANGLEY-11071 872-10663 06
- WILLNER, L.**
Compensator design for low-sensitivity linear time-invariant systems (COMPDES)
M-FS-21652 872-10486 09
- WILSON, A. H.**
Velocity accelerator for particles
NPO-11349 872-10082 03
- WILSON, L. W.**
Advanced protective coating for superalloys
LEWIS-11473 872-10150 04
- WILSON, S. K.**
Comparative performance of double-focus and quadrupole mass spectrometers
NPO-11689 872-10702 03
- WILTENS, J. F.**
Stem clutch for motor driven valve
LRL-10032 872-10345 07
- WINE, G. W.**
Removal of filler material from large high energy formed parts
M-FS-16326 872-10104 06
- WINEMILLER, J. R.**
Improved high-temperature gimbal joint
LEWIS-11705 872-10489 06
- WINTERS, G. R.**
Tissue holder for experimental and Demonstration Surgery
LEWIS-11755 872-10630 05
- WIFF, S. L.**
Alternating current losses in superconducting coils
M-FS-21129 872-10360 03
- WIZENICK, R. J.**
Sheet plastic filters for solar cells
NPO-11464 872-10090 04
- WOJCIECHOWSKI, C. J.**
Study of high altitude plume impingement
M-FS-21414 872-10601 09
- WOLFE, H.**
Interplanetary Trajectories, Encke Method (ITEM)
GSFC-11576 872-10604 09
- WOLTHUIS, R. A.**
Automated analysis of blood pressure measurements (Korotkov sound)
MSC-13999 872-10756 05
- WONG, T. L.**
Analysis and computer programs to calculate acoustic wave properties of baffled chambers
LEWIS-11529 872-10577 09
- WOODBURY, R. C.**
Control of acceleration in sine/random vibration tests
NPO-11482 872-10091 02
Standard environmental testing practices
NPO-11567 872-10101 02
- WOOLLMAN, J. A.**
Magnetometer uses bismuth-selenide
LEWIS-11632 872-10629 03
- WRIGHT, D.**
An improved aesthesiometer
MSC-13609 872-10032 05
- WRIGHT, H. W., JR.**
Two-stage coaxial gas compressor
ARC-10426 872-10210 06
Miniature high pressure regulator
ARC-10428 872-10211 07
- WYDEVEN, T.**
Stabilization of porous glass reverse-osmosis membranes
ARC-10646 872-10309 04
Purification of contaminated water by filtration through porous glass
ARC-10655 872-10412 04
Rapid evaluation of reverse-osmosis membranes
ARC-10659 872-10413 04
Oxygen plasmas used to synthesize superoxides
ARC-10686 872-10570 04
Reverse-osmosis membranes by plasma polymerization
ARC-10696 872-10710 04
- WYDEVEN, T. J.**
Catalyst for sodium chlorate decomposition
ARC-10584 872-10305 04
- WYNVEEN, R. A.**
Aircrew oxygen system
ARC-10247 872-10195 05

Y

YASUI, R. K.

Performance of silicon solar cell assemblies
NPO-11847 B72-10186 01

YATES, J. E.

Improvements of Zeyded method for calculating flutter of flat panels
M-FS-20955 B72-10399 06

YAVNER, E. M.

Improved laboratory gradiometer can be a field survey instrument
MSC-13980 B72-10001 03

YEE, L.

Technique for producing wind-tunnel heat-transfer models
ARC-10658 B72-10349 08

YEE, S. T.

Improved high-temperature gimbal joint
LEWIS-11705 B72-10489 06

YOSHINO, S. Y.

A new vibration dampening adhesive
MSC-17668 B72-10284 04

YOUNG, D. R.

Weight simulator
ARC-10100 B72-10046 05
Programmed physiological infusion system
ARC-10447 B72-10126 05

YOUNG, J. D.

Cubic spline functions for curve fitting
LRL-10034 B72-10311 09

YOUNG, N.

Liquid-helium-cooled Michelson interferometer
ARC-10554 B72-10217 03

Z

ZABOWER, H. R.

Hand-held photomicroscopy system
ARC-10468 B72-10190 03

ZAGARINS, J.

Magnetic-doped alloys with very large Seebeck coefficients
M-FS-21410 B72-10318 04

ZALEWSKI, E. F.

An absorption spectrum amplifier for determining gas composition
HQ-10752 B72-10524 03

ZARETSKY, E. V.

Common bearing material has highest fatigue life at moderate temperature
LEWIS-11592 B72-10382 04
Study of hot hardness characteristics of tool steels
LEWIS-11785 B72-10583 04

ZERLAUT, G. A.

Study of in-situ degradation of thermal control surfaces
M-FS-20892 B72-10336 04
Investigation of environmental effects on coatings for thermal control
M-FS-21932 B72-10596 04

ZINSLEY, W. M.

Deflection resistance indicator
M-FS-24010 B72-10401 04

ZIVLEY, G.

A compact battery powered digital thermometer
MSC-14084 B72-10545 02

ZORN, J. C.

Metastable atom probe for measuring electron beam density profiles
M-FS-21593 B72-10485 03

ZUCKER, O. S.

Electronic switching circuit uses complementary non-linear components
AEC-10060 B72-10236 01

ZUK, J.

High speed, self-acting, face-contact shaft seal has low leakage and very low wear
LEWIS-11598 B72-10114 07

ORIGINATING CENTER/TECH BRIEF NUMBER INDEX

Index to NA SA Tech Briefs

Issue 13

Originating Center/Tech Brief Number Index

The left hand column identifies the originating Center number; to the right of each originating Center number is the Tech Brief number, e.g., B72-10497, followed by a two-digit number, e.g., 01, which identifies the subject category containing the entire citation.

AEC-10003	B72-10039 03	ARC-10181	B72-10193 05	ARC-10464	B72-10300 04
AEC-10004	B72-10003 03	ARC-10197	B72-10119 02	ARC-10467	B72-10218 01
AEC-10007	B72-10146 03	ARC-10198	B72-10188 03	ARC-10468	B72-10190 03
AEC-10010	B72-10044 04	ARC-10219	B72-10049 06	ARC-10471	B72-10020 03
AEC-10011	B72-10371 05	ARC-10238	B72-10050 02	ARC-10474	B72-10162 06
AEC-10013	B72-10004 03	ARC-10239	B72-10120 07	ARC-10480	B72-10163 06
AEC-10017	B72-10430 04	ARC-10244	B72-10246 03	ARC-10481	B72-10164 02
AEC-10018	B72-10427 08	ARC-10245	B72-10194 05	ARC-10484	B72-10008 03
AEC-10019	B72-10428 08	ARC-10247	B72-10195 05	ARC-10485	B72-10021 01
AEC-10026	B72-10367 04	ARC-10248	B72-10219 05	ARC-10486	B72-10009 06
AEC-10036	B72-10368 03	ARC-10250	B72-10074 02	ARC-10487	B72-10273 03
AEC-10039	B72-10369 01	ARC-10252	B72-10051 02	ARC-10488	B72-10220 05
AEC-10042	B72-10240 03	ARC-10255	B72-10052 02	ARC-10489	B72-10165 01
AEC-10044	B72-10239 06	ARC-10263	B72-10196 03	ARC-10490	B72-10214 09
AEC-10046	B72-10365 04	ARC-10274	B72-10053 03	ARC-10491	B72-10221 03
AEC-10048	B72-10233 05	ARC-10275	B72-10297 05	ARC-10492	B72-10127 03
AEC-10049	B72-10429 05	ARC-10278	B72-10274 03	ARC-10493	B72-10201 04
AEC-10051	B72-10238 08	ARC-10280	B72-10269 04	ARC-10495	B72-10022 06
AEC-10053	B72-10235 04	ARC-10292	B72-10054 01	ARC-10496	B72-10010 06
AEC-10060	B72-10236 01	ARC-10294	B72-10055 01	ARC-10498	B72-10023 09
AEC-10062	B72-10366 04	ARC-10295	B72-10121 06	ARC-10503	B72-10011 06
AEC-10068	B72-10370 01	ARC-10302	B72-10298 05	ARC-10504	B72-10012 06
AEC-10070	B72-10234 04	ARC-10303	B72-10197 07	ARC-10505	B72-10013 06
AEC-10077	B72-10372 02	ARC-10308	B72-10198 03	ARC-10506	B72-10024 06
AEC-10079	B72-10373 03	ARC-10311	B72-10041 08	ARC-10509	B72-10014 01
AEC-10080	B72-10237 08	ARC-10312	B72-10040 06	ARC-10511	B72-10025 08
AEC-10083	B72-10231 04	ARC-10319	B72-10199 04	ARC-10514	B72-10301 05
AEC-10085	B72-10431 04	ARC-10320	B72-10202 03	ARC-10516	B72-10128 03
AEC-10088	B72-10364 04	ARC-10329	B72-10203 05	ARC-10519	B72-10692 06
AEC-10090	B72-10232 03	ARC-10330	B72-10056 01	ARC-10521	B72-10166 03
ARC-10007	B72-10191 02	ARC-10338	B72-10204 06	ARC-10522	B72-10222 09
ARC-10024	B72-10557 05	ARC-10345	B72-10122 07	ARC-10523	B72-10180 03
ARC-10041	B72-10045 01	ARC-10348	B72-10057 01	ARC-10524	B72-10026 03
ARC-10073	B72-10268 01	ARC-10351	B72-10205 05	ARC-10525	B72-10416 04
ARC-10100	B72-10046 05	ARC-10364	B72-10691 01	ARC-10527	B72-10167 02
ARC-10135	B72-10451 04	ARC-10370	B72-10206 03	ARC-10528	B72-10027 04
ARC-10137	B72-10047 01	ARC-10374	B72-10058 08	ARC-10529	B72-10215 04
ARC-10148	B72-10192 03	ARC-10375	B72-10123 03	ARC-10531	B72-10028 04
ARC-10153	B72-10558 06	ARC-10384	B72-10160 03	ARC-10532	B72-10029 04
ARC-10155	B72-10173 07	ARC-10387	B72-10184 01	ARC-10533	B72-10302 03
ARC-10164	B72-10148 03	ARC-10399	B72-10189 05	ARC-10546	B72-10168 05
ARC-10173	B72-10048 03	ARC-10403	B72-10207 03	ARC-10550	B72-10559 05
ARC-10176	B72-10296 02	ARC-10404	B72-10059 01	ARC-10553	B72-10223 04
		ARC-10405	B72-10060 01	ARC-10554	B72-10217 03
		ARC-10406	B72-10200 05	ARC-10555	B72-10303 05
		ARC-10408	B72-10208 03	ARC-10556	B72-10304 01
		ARC-10410	B72-10161 04	ARC-10557	B72-10417 02
		ARC-10411	B72-10061 05	ARC-10558	B72-10276 03
		ARC-10412	B72-10124 01	ARC-10559	B72-10277 03
		ARC-10413	B72-10179 07	ARC-10560	B72-10278 03
		ARC-10415	B72-10062 05	ARC-10562	B72-10272 02
		ARC-10422	B72-10209 03	ARC-10563	B72-10560 04
		ARC-10423	B72-10125 05	ARC-10566	B72-10418 04
		ARC-10426	B72-10210 06	ARC-10567	B72-10419 04
		ARC-10428	B72-10211 07	ARC-10568	B72-10247 04
		ARC-10430	B72-10299 09	ARC-10569	B72-10248 03
		ARC-10438	B72-10212 03	ARC-10570	B72-10420 04
		ARC-10447	B72-10126 05	ARC-10571	B72-10421 04
		ARC-10448	B72-10171 03	ARC-10572	B72-10422 04
		ARC-10449	B72-10270 03	ARC-10574	B72-10249 04
		ARC-10450	B72-10271 01	ARC-10582	B72-10250 06
		ARC-10450	B72-10452 01	ARC-10583	B72-10275 01
		ARC-10456	B72-10213 06	ARC-10584	B72-10305 04
		ARC-10459	B72-10063 04	ARC-10592	B72-10709 04
		ARC-10460	B72-10169 03	ARC-10593	B72-10561 01

ORIGINATING CENTER/TECH BRIEF NUMBER-INDEX

ARC-10594	772-10306 04	HQ-10628	772-10652 05	LANGLEY-11068	772-10749 06
ARC-10597	772-10695 05	HQ-10645	772-10516 03	LANGLEY-11069	772-10395 05
ARC-10598	772-10563 03	HQ-10660	772-10525 05	LANGLEY-11071	772-10663 06
ARC-10600	772-10564 02	HQ-10662	772-10653 05	LANGLEY-11072	772-10683 08
ARC-10601	772-10251 03	HQ-10663	772-10670 03	LANGLEY-11074	772-10637 05
ARC-10602	772-10307 03	HQ-10664	772-10482 05	LANGLEY-11109	772-10504 09
ARC-10603	772-10308 01	HQ-10674	772-10517 04	LANGLEY-11124	772-10607 09
ARC-10612	772-10252 08	HQ-10683	772-10327 03	LANGLEY-11138	772-10533 05
ARC-10613	772-10423 04	HQ-10685	772-10438 04	LANGLEY-11139	772-10543 06
ARC-10615	772-10064 09	HQ-10687	772-10530 01	LANGLEY-11202	772-10066 07
ARC-10616	772-10065 09	HQ-10688	772-10654 03	LANGLEY-11210	772-10741 01
ARC-10621	772-10693 06	HQ-10690	772-10172 04		
ARC-10646	772-10309 04	HQ-10695	772-10481 02		
ARC-10647	772-10565 04	HQ-10696	772-10527 01	LEWIS-10436	772-10514 04
ARC-10648	772-10566 04	HQ-10698	772-10257 04	LEWIS-10482	772-10253 09
ARC-10651	772-10567 03	HQ-10701	772-10655 03	LEWIS-10679	772-10444 09
ARC-10653	772-10310 03	HQ-10706	772-10519 04	LEWIS-10800	772-10454 04
ARC-10655	772-10412 04	HQ-10709	772-10656 09	LEWIS-10941	772-10406 04
ARC-10656	772-10549 03	HQ-10712	772-10534 08	LEWIS-10965	772-10456 04
ARC-10657	772-10568 09	HQ-10714	772-10746 04	LEWIS-10982	772-10378 04
ARC-10658	772-10349 08	HQ-10715	772-10520 03	LEWIS-11015	772-10282 04
ARC-10659	772-10413 04	HQ-10720	772-10521 03	LEWIS-11047	772-10038 04
ARC-10660	772-10414 07	HQ-10723	772-10591 02	LEWIS-11069	772-10177 02
ARC-10661	772-10415 05	HQ-10727	772-10465 03	LEWIS-11072	772-10515 04
ARC-10677	772-10424 04	HQ-10741	772-10522 05	LEWIS-11095	772-10229 05
ARC-10679	772-10569 07	HQ-10743	772-10671 09	LEWIS-11097	772-10111 09
ARC-10680	772-10550 04	HQ-10745	772-10755 01	LEWIS-11110	772-10483 09
ARC-10682	772-10432 08	HQ-10752	772-10524 03	LEWIS-11159	772-10227 03
ARC-10686	772-10570 04	HQ-10754	772-10528 03	LEWIS-11192	772-10259 03
ARC-10687	772-10571 03	HQ-10761	772-10748 06	LEWIS-11234	772-10626 06
ARC-10694	772-10572 03	HQ-10766	772-10657 05	LEWIS-11237	772-10405 09
ARC-10696	772-10710 04	HQ-10767	772-10531 05	LEWIS-11259	772-10754 08
ARC-10708	772-10255 01	HQ-10776	772-10658 05	LEWIS-11267	772-10256 04
ARC-10723	772-10699 03	HQ-10777	772-10659 05	LEWIS-11268	772-10745 08
		HQ-10778	772-10660 05	LEWIS-11270	772-10546 06
		HQ-10779	772-10661 05	LEWIS-11274	772-10447 07
		HQ-10783	772-10518 01	LEWIS-11283	772-10537 07
		HQ-10788	772-10532 03	LEWIS-11290	772-10133 06
		HQ-10790	772-10523 01	LEWIS-11323	772-10175 04
		HQ-10798	772-10662 03	LEWIS-11327	772-10134 01
				LEWIS-11345	772-10135 06
GSFC-10525	772-10471 02	KSC-10304	772-10540 06	LEWIS-11354	772-10151 03
GSFC-10566	772-10574 07	KSC-10513	772-10283 07	LEWIS-11368	772-10069 09
GSFC-10901	772-10647 02	KSC-10618	772-10636 06	LEWIS-11380	772-10491 04
GSFC-10909	772-10599 09	KSC-10668	772-10578 01	LEWIS-11401	772-10181 01
GSFC-10913	772-10649 08	KSC-10702	772-10295 02	LEWIS-11417	772-10326 07
GSFC-10995	772-10113 03	KSC-10704	772-10376 01	LEWIS-11465	772-10477 01
GSFC-11051	772-10462 01	KSC-10707	772-10536 07	LEWIS-11466	772-10183 06
GSFC-11061	772-10719 01	KSC-10708	772-10509 07	LEWIS-11467	772-10580 04
GSFC-11082	772-10388 03	KSC-10723	772-10541 02	LEWIS-11469	772-10379 03
GSFC-11087	772-10751 02	KSC-10768	772-10685 07	LEWIS-11471	772-10176 01
GSFC-11200	772-10472 03	KSC-10770	772-10433 07	LEWIS-11473	772-10150 04
GSFC-11216	772-10396 04			LEWIS-11479	772-10290 04
GSFC-11239	772-10102 01			LEWIS-11483	772-10136 04
GSFC-11244	772-10387 03			LEWIS-11486	772-10503 04
GSFC-11253	772-10129 04			LEWIS-11487	772-10145 01
GSFC-11255	772-10497 07			LEWIS-11493	772-10225 09
GSFC-11283	772-10132 03			LEWIS-11494	772-10463 01
GSFC-11304	772-10291 04			LEWIS-11495	772-10144 04
GSFC-11308	772-10620 09			LEWIS-11498	772-10286 02
GSFC-11323	772-10436 06			LEWIS-11499	772-10403 06
GSFC-11358	772-10280 04			LEWIS-11503	772-10292 07
GSFC-11387	772-10289 06			LEWIS-11512	772-10434 07
GSFC-11397	772-10606 09			LEWIS-11513	772-10478 03
GSFC-11403	772-10440 03			LEWIS-11514	772-10288 08
GSFC-11445	772-10490 06			LEWIS-11529	772-10577 09
GSFC-11499	772-10600 09			LEWIS-11533	772-10130 03
GSFC-11505	772-10610 09			LEWIS-11534	772-10362 09
GSFC-11523	772-10675 09			LEWIS-11535	772-10331 06
GSFC-11526	772-10608 09			LEWIS-11549	772-10480 01
GSFC-11539	772-10608 09			LEWIS-11552	772-10506 01
GSFC-11545	772-10619 09			LEWIS-11553	772-10513 08
GSFC-11576	772-10604 09			LEWIS-11572	772-10484 07
GSFC-11597	772-10674 09			LEWIS-11574	772-10330 06
GSFC-11612	772-10650 09			LEWIS-11581	772-10512 05
				LEWIS-11592	772-10382 04
				LEWIS-11593	772-10178 07
				LEWIS-11595	772-10385 07
HQ-10302	772-10651 06				
HQ-10306	772-10458 09				
HQ-10371	772-10495 03				
HQ-10541	772-10389 03				
HQ-10580	772-10529 04				
HQ-10582	772-10526 05				

C-3

ORIGINATING CENTER/TECH BRIEF NUMBER INDEX

LEWIS-11598	B72-10114 07	M-FS-19113	B72-10394 08	M-FS-21630	B72-10612 04
LEWIS-11602	B72-10672 07	M-FS-20074	B72-10260 03	M-FS-21637	B72-10143 03
LEWIS-11609	B72-10443 03	M-FS-20111	B72-10575 07	M-FS-21650	B72-10459 07
LEWIS-11615	B72-10581 06	M-FS-20205	B72-10640 07	M-FS-21652	B72-10486 09
LEWIS-11617	B72-10727 03	M-FS-20213	B72-10154 03	M-FS-21664	B72-10535 02
LEWIS-11619	B72-10479 01	M-FS-20407	B72-10347 01	M-FS-21668	B72-10266 04
LEWIS-11632	B72-10629 03	M-FS-20658	B72-10442 02	M-FS-21671	B72-10682 02
LEWIS-11634	B72-10344 04	M-FS-20692	B72-10348 07	M-FS-21674	B72-10666 04
LEWIS-11635	B72-10586 09	M-FS-20711	B72-10313 04	M-FS-21675	B72-10352 07
LEWIS-11636	B72-10070 09	M-FS-20744	B72-10648 09	M-FS-21691	B72-10294 04
LEWIS-11638	B72-10137 04	M-FS-20814	B72-10140 03	M-FS-21693	B72-10357 02
LEWIS-11639	B72-10439 04	M-FS-20835	B72-10402 05	M-FS-21704	B72-10351 03
LEWIS-11642	B72-10384 07	M-FS-20839	B72-10139 02	M-FS-21711	B72-10267 09
LEWIS-11647	B72-10511 04	M-FS-20848	B72-10342 04	M-FS-21716	B72-10404 07
LEWIS-11649	B72-10738 06	M-FS-20892	B72-10336 04	M-FS-21720	B72-10639 02
LEWIS-11651	B72-10585 09	M-FS-20915	B72-10106 01	M-FS-21724	B72-10317 03
LEWIS-11652	B72-10742 04	M-FS-20933	B72-10156 01	M-FS-21731	B72-10687 07
LEWIS-11657	B72-10397 04	M-FS-20941	B72-10152 03	M-FS-21735	B72-10470 07
LEWIS-11658	B72-10377 07	M-FS-20955	B72-10399 06	M-FS-21742	B72-10354 03
LEWIS-11665	B72-10728 04	M-FS-20979	B72-10342 04	M-FS-21751	B72-10667 09
LEWIS-11678	B72-10383 02	M-FS-20984	B72-10333 04	M-FS-21774	B72-10603 06
LEWIS-11679	B72-10584 09	M-FS-20994	B72-10450 05	M-FS-21788	B72-10576 06
LEWIS-11680	B72-10437 06	M-FS-21039	B72-10342 04	M-FS-21822	B72-10645 07
LEWIS-11693	B72-10634 09	M-FS-21070	B72-10361 02	M-FS-21831	B72-10589 09
LEWIS-11698	B72-10737 01	M-FS-21113	B72-10321 04	M-FS-21846	B72-10669 06
LEWIS-11705	B72-10489 06	M-FS-21128	B72-10350 09	M-FS-21847	B72-10613 06
LEWIS-11708	B72-10726 09	M-FS-21129	B72-10360 03	M-FS-21848	B72-10380 06
LEWIS-11714	B72-10718 09	M-FS-21165	B72-10409 02	M-FS-21877	B72-10494 06
LEWIS-11722	B72-10739 09	M-FS-21212	B72-10665 03	M-FS-21880	B72-10676 09
LEWIS-11724	B72-10359 08	M-FS-21232	B72-10358 04	M-FS-21883	B72-10588 05
LEWIS-11740	B72-10718 09	M-FS-21233	B72-10594 04	M-FS-21911	B72-10689 06
LEWIS-11741	B72-10593 08	M-FS-21246	B72-10107 03	M-FS-21915	B72-10643 01
LEWIS-11750	B72-10684 04	M-FS-21262	B72-10598 06	M-FS-21916	B72-10353 04
LEWIS-11751	B72-10632 05	M-FS-21266	B72-10592 04	M-FS-21924	B72-10316 01
LEWIS-11754	B72-10587 04	M-FS-21267	B72-10320 04	M-FS-21926	B72-10698 05
LEWIS-11755	B72-10630 05	M-FS-21277	B72-10112 01	M-FS-21927	B72-10615 06
LEWIS-11761	B72-10579 05	M-FS-21288	B72-10157 04	M-FS-21928	B72-10293 08
LEWIS-11775	B72-10716 06	M-FS-21289	B72-10141 02	M-FS-21930	B72-10476 06
LEWIS-11785	B72-10583 04	M-FS-21291	B72-10108 02	M-FS-21932	B72-10596 04
LEWIS-11804	B72-10673 01	M-FS-21325	B72-10262 04	M-FS-21955	B72-10621 09
LEWIS-11808	B72-10582 09	M-FS-21326	B72-10109 02	M-FS-21964	B72-10393 01
LEWIS-11813	B72-10681 07	M-FS-21344	B72-10392 02	M-FS-21965	B72-10622 09
LEWIS-11814	B72-10686 06	M-FS-21361	B72-10597 07	M-FS-21991	B72-10624 09
LEWIS-11823	B72-10627 04	M-FS-21374	B72-10329 07	M-FS-22003	B72-10638 08
LEWIS-11824	B72-10635 08	M-FS-21377	B72-10110 07	M-FS-22012	B72-10499 07
LEWIS-11826	B72-10715 06	M-FS-21410	B72-10318 04	M-FS-22024	B72-10468 02
LEWIS-11835	B72-10633 04	M-FS-21414	B72-10601 09	M-FS-22043	B72-10680 02
LEWIS-11840	B72-10717 04	M-FS-21416	B72-10263 03	M-FS-22044	B72-10697 01
LEWIS-11851	B72-10631 06	M-FS-21441	B72-10487 03	M-FS-22062	B72-10720 03
LEWIS-11863	B72-10753 09	M-FS-21448	B72-10595 08	M-FS-22064	B72-10464 04
LEWIS-11864	B72-10628 04	M-FS-21466	B72-10602 09	M-FS-22090	B72-10474 01
LEWIS-11898	B72-10752 02	M-FS-21469	B72-10319 07	M-FS-22092	B72-10460 03
		M-FS-21486	B72-10505 01	M-FS-22117	B72-10688 02
		M-FS-21488	B72-10355 07	M-FS-22118	B72-10646 01
		M-FS-21495	B72-10264 07	M-FS-22119	B72-10469 04
LRL-10024	B72-10312 03	M-FS-21498	B72-10158 06	M-FS-22264	B72-10696 01
LRL-10025	B72-10475 07	M-FS-21513	B72-10287 07	M-FS-22280	B72-10740 04
LRL-10028	B72-10500 03	M-FS-21531	B72-10265 09	M-FS-22410	B72-10401 04
LRL-10031	B72-10314 03	M-FS-21537	B72-10142 09	M-FS-24109	B72-10381 06
LRL-10032	B72-10345 07	M-FS-21539	B72-10493 04	M-FS-24119	B72-10441 06
LRL-10033	B72-10343 04	M-FS-21553	B72-10254 02	M-FS-24221	B72-10679 06
LRL-10034	B72-10311 09	M-FS-21556	B72-10325 07		
		M-FS-21558	B72-10644 08	MSC-11653	B72-10721 09
M-FS-13754	B72-10103 01	M-FS-21560	B72-10187 04	MSC-12282	B72-10332 07
M-FS-14133	B72-10730 05	M-FS-21567	B72-10323 06	MSC-12395	B72-10729 01
M-FS-14478	B72-10664 02	M-FS-21571	B72-10386 04	MSC-12458	B72-10030 02
M-FS-14741	B72-10363 01	M-FS-21573	B72-10617 05	MSC-12548	B72-10496 06
M-FS-14952	B72-10448 02	M-FS-21575	B72-10324 03	MSC-13036	B72-10334 05
M-FS-15218	B72-10498 07	M-FS-21576	B72-10467 02	MSC-13499	B72-10337 04
M-FS-16097	B72-10400 07	M-FS-21593	B72-10485 03	MSC-13604	B72-10031 05
M-FS-16319	B72-10688 07	M-FS-21597	B72-10408 06	MSC-13609	B72-10032 05
M-FS-16326	B72-10104 06	M-FS-21606	B72-10457 08	MSC-13648	B72-10642 05
M-FS-16848	B72-10346 04	M-FS-21609	B72-10131 02	MSC-13700	B72-10216 07
M-FS-16863	B72-10678 07	M-FS-21612	B72-10322 07	MSC-13805	B72-10736 09
M-FS-18178	B72-10488 06	M-FS-21613	B72-10147 03	MSC-13814	B72-10411 02
M-FS-18401	B72-10105 06	M-FS-21614	B72-10410 09	MSC-13816	B72-10033 03
M-FS-18859	B72-10614 09	M-FS-21618	B72-10466 06	MSC-13850	B72-10174 07
M-FS-19004	B72-10407 06	M-FS-21626	B72-10149 01	MSC-13864	B72-10182 09

ORIGINATING CENTER/TECH BRIEF NUMBER INDEX

MSC-13880	872-10390 02	NPO-11402	872-10084 06
MSC-13906	872-10006 05	NPO-11403	872-10085 03
MSC-13917	872-10281 05	NPO-11404	872-10086 02
MSC-13923-4	872-10005 04	NPO-11405	872-10087 03
MSC-13965	872-10034 03	NPO-11407	872-10507 02
MSC-13977	872-10015 09	NPO-11416	872-10398 07
MSC-13978	872-10016 03	NPO-11417	872-10723 06
MSC-13980	872-10001 03	NPO-11421	872-10088 02
MSC-13993	872-10261 09	NPO-11432	872-10701 03
MSC-13999	872-10756 05	NPO-11457	872-10089 02
MSC-14003	872-10017 05	NPO-11464	872-10090 04
MSC-14005	872-10018 02	NPO-11479	872-10706 03
MSC-14016	872-10605 09	NPO-11482	872-10091 02
MSC-14024	872-10445 08	NPO-11494	872-10724 02
MSC-14032	872-10019 04	NPO-11499	872-10555 01
MSC-14053	872-10285 02	NPO-11502	872-10092 01
MSC-14070	872-10573 02	NPO-11503	872-10093 06
MSC-14084	872-10545 02	NPO-11518	872-10094 02
MSC-14087	872-10590 06	NPO-11524	872-10095 07
MSC-14088	872-10446 06	NPO-11527	872-10096 01
MSC-14117	872-10501 02	NPO-11544	872-10097 06
MSC-14118	872-10435 03	NPO-11545	872-10098 02
MSC-14120	872-10542 07	NPO-11554	872-10341 03
MSC-14121	872-10539 07	NPO-11560	872-10099 02
MSC-14123	872-10461 05	NPO-11561	872-10100 01
MSC-14126	872-10391 05	NPO-11562	872-10043 01
MSC-14127	872-10391 05	NPO-11563	872-10315 01
MSC-14138	872-10544 04	NPO-11567	872-10101 02
MSC-14151	872-10690 05	NPO-11573	872-10508 02
MSC-14161	872-10750 09	NPO-11592	872-10705 01
MSC-14198	872-10734 08	NPO-11603	872-10743 06
MSC-14234	872-10732 05	NPO-11627	872-10155 01
MSC-14245	872-10733 06	NPO-11634	872-10609 02
MSC-14247	872-10616 08	NPO-11639	872-10159 01
MSC-15703	872-10075 06	NPO-11658	872-10704 06
MSC-15818	872-10118 07	NPO-11663	872-10185 01
MSC-15953	872-10117 07	NPO-11689	872-10702 03
MSC-17185	872-10449 04	NPO-11708	872-10694 02
MSC-17324	872-10453 01	NPO-11725	872-10707 03
MSC-17457	872-10076 02	NPO-11738	872-10241 06
MSC-17526	872-10510 02	NPO-11815	872-10426 07
MSC-17563	872-10071 09	NPO-11847	872-10186 01
MSC-17619	872-10625 09	NPO-11852	872-10556 03
MSC-17668	872-10284 04	NPO-11859	872-10425 04
MSC-17694	872-10335 09	NPO-11885	872-10242 03
MSC-17713	872-10562 08	NPO-11892	872-10072 09
MSC-17738	872-10338 06	NPO-11934	872-10708 05
MSC-17745	872-10538 07	NPO-11943	872-10073 09
MSC-17827	872-10735 01	NPO-11960	872-10747 09
MSC-17848	872-10677 06	NPO-11973	872-10623 09
MSC-17930	872-10722 06	NPO-12004	872-10502 06
		NPO-12028	872-10551 04
		NPO-12029	872-10552 06
NPO-10034	872-10492 01		
NPO-10117	872-10703 03		
NPO-10351	872-10226 01	NUC-11019	872-10258 06
NPO-10556	872-10007 01	NUC-11020	872-10228 06
NPO-10619	872-10554 03		
NPO-10671	872-10712 06		
NPO-10714	872-10553 04	XAC-01547	872-10279 05
NPO-11139	872-10711 04	XAC-05422	872-10224 05
NPO-11165	872-10077 01	XAC-08505	872-10035 05
NPO-11287	872-10078 06	XAC-09489	872-10036 07
NPO-11306	872-10116 01	XAC-10048	872-10037 06
NPO-11322	872-10244 03	XAC-10768	872-10170 03
NPO-11330	872-10713 06		
NPO-11339	872-10079 01		
NPO-11341	872-10080 01		
NPO-11346	872-10243 05		
NPO-11348	872-10081 08		
NPO-11349	872-10082 03		
NPO-11366	872-10714 06		
NPO-11367	872-10083 03		
NPO-11368	872-10042 01		
NPO-11387	872-10700 03		
NPO-11388	872-10138 01		
NPO-11401	872-10245 01		

TECH BRIEF/ORIGINATING CENTER NUMBER INDEX

Index to NASA Tech Briefs

Issue 13

Tech Brief/Originating Center Number Index

The left hand column identifies the Tech Brief number, e.g., B72-10047, followed by a two-digit number, e.g., 05, which identifies the subject category containing the entire citation. Following the subject category number is the originating Center number.

B72-10001 03	MSC-13980	B72-10046 05	ARC-10100	B72-10111 09	LEWIS-11097
B72-10002 04	LANGLEY-10941	B72-10047 01	ARC-10137	B72-10112 01	M-FS-21277
B72-10003 03	AEC-10004	B72-10048 03	ARC-10173	B72-10113 03	GSFC-10995
B72-10004 03	AEC-10013	B72-10049 06	ARC-10219	B72-10114 07	LEWIS-11598
B72-10005 04	MSC-13923-4	B72-10050 02	ARC-10238	B72-10115 04	LANGLEY-10940
B72-10006 05	MSC-13906	B72-10051 02	ARC-10252	B72-10116 01	NPO-11306
B72-10007 01	NPO-10556	B72-10052 02	ARC-10255	B72-10117 07	MSC-15953
B72-10008 03	ARC-10484	B72-10053 03	ARC-10274	B72-10118 07	MSC-15818
B72-10009 06	ARC-10486	B72-10054 01	ARC-10292	B72-10119 02	ARC-10197
B72-10010 06	ARC-10496	B72-10055 01	ARC-10294	B72-10120 07	ARC-10239
B72-10011 06	ARC-10503	B72-10056 01	ARC-10330	B72-10121 06	ARC-10295
B72-10012 06	ARC-10504	B72-10057 01	ARC-10348	B72-10122 07	ARC-10345
B72-10013 06	ARC-10505	B72-10058 08	ARC-10374	B72-10123 03	ARC-10375
B72-10014 01	ARC-10509	B72-10059 01	ARC-10404	B72-10124 01	ARC-10412
B72-10015 09	MSC-13977	B72-10060 01	ARC-10405	B72-10125 05	ARC-10423
B72-10016 03	MSC-13978	B72-10061 05	ARC-10411	B72-10126 05	ARC-10447
B72-10017 05	MSC-14003	B72-10062 05	ARC-10415	B72-10127 03	ARC-10492
B72-10018 02	MSC-14005	B72-10063 04	ARC-10459	B72-10128 03	ARC-10516
B72-10019 04	MSC-14032	B72-10064 09	ARC-10615	B72-10129 04	GSFC-11253
B72-10020 03	ARC-10471	B72-10065 09	ARC-10616	B72-10130 03	LEWIS-11533
B72-10021 01	ARC-10485	B72-10066 07	LANGLEY-11202	B72-10131 02	M-FS-21609
B72-10022 06	ARC-10495	B72-10067 09	LANGLEY-11048	B72-10132 03	GSFC-11283
B72-10023 09	ARC-10498	B72-10068 09	LANGLEY-11049	B72-10133 06	LEWIS-11290
B72-10024 06	ARC-10506	B72-10069 09	LEWIS-11368	B72-10134 01	LEWIS-11327
B72-10025 08	ARC-10511	B72-10070 09	LEWIS-11636	B72-10135 06	LEWIS-11345
B72-10026 03	ARC-10524	B72-10071 09	MSC-17563	B72-10136 04	LEWIS-11483
B72-10027 04	ARC-10528	B72-10072 09	NPO-11892	B72-10137 04	LEWIS-11638
B72-10028 04	ARC-10531	B72-10073 09	NPO-11943	B72-10138 01	NPO-11388
B72-10029 04	ARC-10532	B72-10074 02	ARC-10250	B72-10139 02	M-FS-20839
B72-10030 02	MSC-12458	B72-10075 06	MSC-15703	B72-10140 03	M-FS-20814
B72-10031 05	MSC-13604	B72-10076 02	MSC-17457	B72-10141 02	M-FS-21289
B72-10032 05	MSC-13609	B72-10077 01	NPO-11165	B72-10142 09	M-FS-21537
B72-10033 03	MSC-13816	B72-10078 06	NPO-11287	B72-10143 03	M-FS-21637
B72-10034 03	MSC-13965	B72-10079 01	NPO-11339	B72-10144 04	LEWIS-11495
B72-10035 05	XAC-08505	B72-10080 01	NPO-11341	B72-10145 01	LEWIS-11487
B72-10036 07	XAC-09489	B72-10081 08	NPO-11348	B72-10146 03	AEC-10007
B72-10037 06	XAC-10048	B72-10082 03	NPO-11349	B72-10147 03	M-FS-21613
B72-10038 04	LEWIS-11047	B72-10083 03	NPO-11367	B72-10148 03	ARC-10164
B72-10039 03	AEC-10003	B72-10084 06	NPO-11402	B72-10149 01	M-FS-21626
B72-10040 06	ARC-10312	B72-10085 03	NPO-11403	B72-10150 04	LEWIS-11473
B72-10041 08	ARC-10311	B72-10086 02	NPO-11404	B72-10151 03	LEWIS-11354
B72-10042 01	NPO-11368	B72-10087 03	NPO-11405	B72-10152 03	M-FS-20941
B72-10043 01	NPO-11562	B72-10088 02	NPO-11421	B72-10153 09	LANGLEY-10932
B72-10044 04	AEC-10010	B72-10089 02	NPO-11457		LANGLEY-10935
B72-10045 01	ARC-10041	B72-10090 04	NPO-11464	B72-10154 03	M-FS-20213
		B72-10091 02	NPO-11482	B72-10155 01	NPO-11627
		B72-10092 01	NPO-11502	B72-10156 01	M-FS-20933
		B72-10093 06	NPO-11503	B72-10157 04	M-FS-21288
		B72-10094 02	NPO-11518	B72-10158 06	M-FS-21498
		B72-10095 07	NPO-11524	B72-10159 01	NPO-11639
		B72-10096 01	NPO-11527	B72-10160 03	ARC-10384
		B72-10097 06	NPO-11544	B72-10161 04	ARC-10410
		B72-10098 02	NPO-11545	B72-10162 06	ARC-10474
		B72-10099 02	NPO-11560	B72-10163 06	ARC-10480
		B72-10100 01	NPO-11561	B72-10164 02	ARC-10481
		B72-10101 02	NPO-11567	B72-10165 01	ARC-10489
		B72-10102 01	GSFC-11239	B72-10166 03	ARC-10521
		B72-10103 01	M-FS-13754	B72-10167 02	ARC-10527
		B72-10104 06	M-FS-16326	B72-10168 05	ARC-10546
		B72-10105 06	M-FS-18401	B72-10169 03	ARC-10460
		B72-10106 01	M-FS-20915	B72-10170 03	XAC-10768
		B72-10107 03	M-FS-21246	B72-10171 03	ARC-10448
		B72-10108 02	M-FS-21291	B72-10172 04	HQ-10690
		B72-10109 02	M-FS-21326	B72-10173 07	ARC-10155
		B72-10110 07	M-FS-21377	B72-10174 07	MSC-13850

TECH BRIEF/ORIGINATING CENTER NUMBER INDEX

872-10175 04	LEWIS-11323	872-10253 09	LEWIS-10482	872-10331 06	LEWIS-11535
872-10176 01	LEWIS-11471	872-10254 02	M-FS-21553	872-10332 07	MSC-12282
872-10177 02	LEWIS-11069	872-10255 01	ARC-10708	872-10333 04	M-FS-20984
872-10178 07	LEWIS-11593	872-10256 04	LEWIS-11267	872-10334 05	MSC-13036
872-10179 07	ARC-10413	872-10257 04	HQ-10698	872-10335 09	MSC-17694
872-10180 03	ARC-10523	872-10258 06	NUC-11019	872-10336 04	M-FS-20892
872-10181 01	LEWIS-11401	872-10259 03	LEWIS-11192	872-10337 04	MSC-13499
872-10182 09	MSC-13864	872-10260 03	M-FS-20074	872-10338 06	MSC-17738
872-10183 06	LEWIS-11466	872-10261 09	MSC-13993	872-10339 04	LANGLEY-10930
872-10184 01	ARC-10387	872-10262 04	M-FS-21325	872-10340 04	LANGLEY-10203
872-10185 01	NPO-11663	872-10263 03	M-FS-21416	872-10341 03	NPO-11554
872-10186 01	NPO-11847	872-10264 07	M-FS-21495	872-10342 04	M-FS-20848
872-10187 04	M-FS-21560	872-10265 09	M-FS-21531		M-FS-20979
872-10188 03	ARC-10198	872-10266 04	M-FS-21668		M-FS-21039
872-10189 05	ARC-10399	872-10267 09	M-FS-21711	872-10343 04	LRL-10033
872-10190 03	ARC-10468	872-10268 01	ARC-10073	872-10344 04	LEWIS-11634
872-10191 02	ARC-10007	872-10269 04	ARC-10280	872-10345 07	LRL-10032
872-10192 03	ARC-10148	872-10270 03	ARC-10449	872-10346 04	M-FS-16848
872-10193 05	ARC-10181	872-10271 01	ARC-10450	872-10347 01	M-FS-20407
872-10194 05	ARC-10245	872-10272 02	ARC-10562	872-10348 07	M-FS-20692
872-10195 05	ARC-10247	872-10273 03	ARC-10487	872-10349 08	ARC-10658
872-10196 03	ARC-10263	872-10274 03	ARC-10278	872-10350 09	M-FS-21128
872-10197 07	ARC-10303	872-10275 01	ARC-10583	872-10351 03	M-FS-21704
872-10198 03	ARC-10308	872-10276 03	ARC-10558	872-10352 07	M-FS-21675
872-10199 04	ARC-10319	872-10277 03	ARC-10559	872-10353 04	M-FS-21916
872-10200 05	ARC-10406	872-10278 03	ARC-10560	872-10354 03	M-FS-21742
872-10201 04	ARC-10493	872-10279 05	XAC-01547	872-10355 07	M-FS-21488
872-10202 03	ARC-10320	872-10280 04	GSFC-11358	872-10356 08	LANGLEY-10782
872-10203 05	ARC-10329	872-10281 05	MSC-13917	872-10357 02	M-FS-21693
872-10204 06	ARC-10338	872-10282 04	LEWIS-11015	872-10358 04	M-FS-21232
872-10205 05	ARC-10351	872-10283 07	KSC-10513	872-10359 08	LEWIS-11724
872-10206 03	ARC-10370	872-10284 04	MSC-17668	872-10360 03	M-FS-21129
872-10207 03	ARC-10403	872-10285 02	MSC-14053	872-10361 02	M-FS-21070
872-10208 03	ARC-10408	872-10286 02	LEWIS-11498	872-10362 09	LEWIS-11534
872-10209 03	ARC-10422	872-10287 07	M-FS-21513	872-10363 01	M-FS-14741
872-10210 06	ARC-10426	872-10288 08	LEWIS-11514	872-10364 04	AEC-10088
872-10211 07	ARC-10428	872-10289 06	GSFC-11387	872-10365 04	AEC-10046
872-10212 03	ARC-10438	872-10290 04	LEWIS-11479	872-10366 04	AEC-10062
872-10213 06	ARC-10456	872-10291 04	GSFC-11304	872-10367 04	AEC-10026
872-10214 09	ARC-10490	872-10292 07	LEWIS-11503	872-10368 03	AEC-10036
872-10215 04	ARC-10529	872-10293 08	M-FS-21928	872-10369 01	AEC-10039
872-10216 07	MSC-13700	872-10294 04	M-FS-21691	872-10370 01	AEC-10068
872-10217 03	ARC-10554	872-10295 02	KSC-10702	872-10371 05	AEC-10011
872-10218 01	ARC-10467	872-10296 02	ARC-10176	872-10372 02	AEC-10077
872-10219 05	ARC-10248	872-10297 05	ARC-10275	872-10373 03	AEC-10079
872-10220 05	ARC-10488	872-10298 05	ARC-10302	872-10374 08	LANGLEY-10486
872-10221 03	ARC-10491	872-10299 09	ARC-10430	872-10375 03	LANGLEY-10896
872-10222 09	ARC-10522	872-10300 04	ARC-10464	872-10376 01	KSC-10704
872-10223 04	ARC-10553	872-10301 05	ARC-10514	872-10377 07	LEWIS-11658
872-10224 05	XAC-05422	872-10302 03	ARC-10533	872-10378 04	LEWIS-10982
872-10225 09	LEWIS-11493	872-10303 05	ARC-10555	872-10379 03	LEWIS-11469
872-10226 01	NPO-10351	872-10304 01	ARC-10556	872-10380 06	M-FS-21848
872-10227 03	LEWIS-11159	872-10305 04	ARC-10584	872-10381 06	M-FS-24109
872-10228 06	NUC-11020	872-10306 04	ARC-10594	872-10382 04	LEWIS-11592
872-10229 05	LEWIS-11095	872-10307 03	ARC-10602	872-10383 02	LEWIS-11678
872-10230 04	LANGLEY-10514	872-10308 01	ARC-10603	872-10384 07	LEWIS-11642
872-10231 04	AEC-10083	872-10309 04	ARC-10646	872-10385 07	LEWIS-11595
872-10232 03	AEC-10090	872-10310 03	ARC-10653	872-10386 04	M-FS-21571
872-10233 05	AEC-10048	872-10311 09	LRL-10034	872-10387 03	GSFC-11244
872-10234 04	AEC-10070	872-10312 03	LRL-10024	872-10388 03	GSFC-11082
872-10235 04	AEC-10053	872-10313 04	M-FS-20711	872-10389 03	HQ-10541
872-10236 01	AEC-10060	872-10314 03	LRL-10031	872-10390 02	MSC-13880
872-10237 08	AEC-10080	872-10315 01	NPO-11563	872-10391 05	MSC-14126
872-10238 08	AEC-10051	872-10316 01	M-FS-21924		MSC-14127
872-10239 06	AEC-10044	872-10317 03	M-FS-21724	872-10392 02	M-FS-21344
872-10240 03	AEC-10042	872-10318 04	M-FS-21410	872-10393 01	M-FS-21964
872-10241 06	NPO-11738	872-10319 07	M-FS-21469	872-10394 08	M-FS-19113
872-10242 03	NPO-11885	872-10320 04	M-FS-21267	872-10395 05	LANGLEY-11069
872-10243 05	NPO-11346	872-10321 04	M-FS-21113	872-10396 04	GSFC-11216
872-10244 03	NPO-11322	872-10322 07	M-FS-21612	872-10397 04	LEWIS-11657
872-10245 01	NPO-11401	872-10323 06	M-FS-21567	872-10398 07	NPO-11416
872-10246 03	ARC-10244	872-10324 03	M-FS-21575	872-10399 06	M-FS-20955
872-10247 04	ARC-10568	872-10325 07	M-FS-21556	872-10400 07	M-FS-16097
872-10248 03	ARC-10569	872-10326 07	LEWIS-11417	872-10401 04	M-FS-24010
872-10249 04	ARC-10574	872-10327 03	HQ-10683	872-10402 05	M-FS-20835
872-10250 06	ARC-10582	872-10328 04	LANGLEY-10681	872-10403 06	LEWIS-11499
872-10251 03	ARC-10601	872-10329 07	M-FS-21374	872-10404 07	M-FS-21716
872-10252 08	ARC-10612	872-10330 06	LEWIS-11574	872-10405 09	LEWIS-11237

TECH BRIEF/ORIGINATING CENTER NUMBER INDEX

B72-10406 04	LEWIS-10941	B72-10485 03	M-FS-21593	B72-10563 03	ARC-10598
B72-10407 06	M-FS-19004	B72-10486 09	M-FS-21652	B72-10564 02	ARC-10600
B72-10408 06	M-FS-21597	B72-10487 03	M-FS-21441	B72-10565 04	ARC-10647
B72-10409 02	M-FS-21165	B72-10488 06	M-FS-18178	B72-10566 04	ARC-10648
B72-10410 09	M-FS-21614	B72-10489 06	LEWIS-11705	B72-10567 03	ARC-10651
B72-10411 02	MSC-13814	B72-10490 06	GSFC-11445	B72-10568 09	ARC-10657
B72-10412 04	ARC-10655	B72-10491 04	LEWIS-11380	B72-10569 07	ARC-10679
B72-10413 04	ARC-10659	B72-10492 01	NPO-10034	B72-10570 04	ARC-10686
B72-10414 07	ARC-10660	B72-10493 04	M-FS-21539	B72-10571 03	ARC-10687
B72-10415 05	ARC-10661	B72-10494 06	M-FS-21877	B72-10572 03	ARC-10694
B72-10416 04	ARC-10525	B72-10495 03	HQ-10371	B72-10573 02	MSC-14070
B72-10417 02	ARC-10557	B72-10496 06	MSC-12548	B72-10574 07	GSFC-10566
B72-10418 04	ARC-10566	B72-10497 07	GSFC-11255	B72-10575 07	M-FS-20111
B72-10419 04	ARC-10567	B72-10498 07	M-FS-15218	B72-10576 06	M-FS-21788
B72-10420 04	ARC-10570	B72-10499 07	M-FS-22012	B72-10577 09	LEWIS-11529
B72-10421 04	ARC-10571	B72-10500 03	LRL-10028	B72-10578 01	KSC-10668
B72-10422 04	ARC-10572	B72-10501 02	MSC-14117	B72-10579 05	LEWIS-11761
B72-10423 04	ARC-10613	B72-10502 06	NPO-12004	B72-10580 04	LEWIS-11467
B72-10424 04	ARC-10677	B72-10503 04	LEWIS-11486	B72-10581 06	LEWIS-11615
B72-10425 04	NPO-11859	B72-10504 09	LANGLEY-11109	B72-10582 09	LEWIS-11808
B72-10426 07	NPO-11815	B72-10505 01	M-FS-21486	B72-10583 04	LEWIS-11785
B72-10427 08	AEC-10018	B72-10506 01	LEWIS-11552	B72-10584 09	LEWIS-11679
B72-10428 08	AEC-10019	B72-10507 02	NPO-11407	B72-10585 09	LEWIS-11651
B72-10429 05	AEC-10049	B72-10508 02	NPO-11573	B72-10586 09	LEWIS-11635
B72-10430 04	AEC-10017	B72-10509 07	KSC-10708	B72-10587 04	LEWIS-11754
B72-10431 04	AEC-10085	B72-10510 02	MSC-17526	B72-10588 05	M-FS-21883
B72-10432 08	ARC-10682	B72-10511 04	LEWIS-11647	B72-10589 09	M-FS-21831
B72-10433 07	KSC-10770	B72-10512 05	LEWIS-11581	B72-10590 06	MSC-14087
B72-10434 07	LEWIS-11512	B72-10513 08	LEWIS-11553	B72-10591 02	HQ-10723
B72-10435 03	MSC-14118	B72-10514 04	LEWIS-10436	B72-10592 04	M-FS-12166
B72-10436 06	GSFC-11323	B72-10515 04	LEWIS-11072	B72-10593 08	LEWIS-11741
B72-10437 06	LEWIS-11680	B72-10516 03	HQ-10645	B72-10594 04	M-FS-21233
B72-10438 04	HQ-10685	B72-10517 04	HQ-10674	B72-10595 08	M-FS-21448
B72-10439 04	LEWIS-11639	B72-10518 01	HQ-10783	B72-10596 04	M-FS-21932
B72-10440 03	GSFC-11403	B72-10519 04	HQ-10706	B72-10597 07	M-FS-21361
B72-10441 06	M-FS-24119	B72-10520 03	HQ-10715	B72-10598 06	M-FS-21262
B72-10442 02	M-FS-20658	B72-10521 03	HQ-10720	B72-10599 09	GSFC-10909
B72-10443 03	LEWIS-11609	B72-10522 05	HQ-10741	B72-10600 09	GSFC-11499
B72-10444 09	LEWIS-10679	B72-10523 01	HQ-10790	B72-10601 09	M-FS-21414
B72-10445 08	MSC-14024	B72-10524 03	HQ-10752	B72-10602 09	M-FS-21466
B72-10446 06	MSC-14088	B72-10525 05	HQ-10660	B72-10603 06	M-FS-21774
B72-10447 07	LEWIS-11274	B72-10526 05	HQ-10582	B72-10604 09	GSFC-11576
B72-10448 02	M-FS-14952	B72-10527 01	HQ-10696	B72-10605 09	MSC-14016
B72-10449 04	MSC-17185	B72-10528 03	HQ-10754	B72-10606 09	GSFC-11397
B72-10450 05	M-FS-20994	B72-10529 04	HQ-10580	B72-10607 09	LANGLEY-11124
B72-10451 04	ARC-10135	B72-10530 01	HQ-10687	B72-10608 09	GSFC-11526
B72-10452 01	ARC-10450	B72-10531 05	HQ-10767		GSFC-11539
B72-10453 01	MSC-17324	B72-10532 03	HQ-10788	B72-10609 02	NPO-11634
B72-10454 04	LEWIS-10800	B72-10533 05	LANGLEY-11138	B72-10610 09	GSFC-11505
B72-10455 01	LANGLEY-10804	B72-10534 08	HQ-10712	B72-10611 03	LANGLEY-10385
B72-10456 04	LEWIS-10965	B72-10535 02	M-FS-21664	B72-10612 04	M-FS-21630
B72-10457 08	M-FS-21606	B72-10536 07	KSC-10707	B72-10613 06	M-FS-21847
B72-10458 09	HQ-10306	B72-10537 07	LEWIS-11283	B72-10614 09	M-FS-18859
B72-10459 07	M-FS-21650	B72-10538 07	MSC-17745	B72-10615 06	M-FS-21927
B72-10460 03	M-FS-22092	B72-10539 07	MSC-14121	B72-10616 08	MSC-14247
B72-10461 05	MSC-14123	B72-10540 06	KSC-10304	B72-10617 05	M-FS-21573
B72-10462 01	GSFC-11051	B72-10541 02	KSC-10723	B72-10618 09	LANGLEY-11047
B72-10463 01	LEWIS-11494	B72-10542 07	MSC-14120	B72-10619 09	GSFC-11545
B72-10464 04	M-FS-22064	B72-10543 06	LANGLEY-11139	B72-10620 09	GSFC-11308
B72-10465 03	HQ-10727	B72-10544 04	MSC-14138	B72-10621 09	M-FS-21955
B72-10466 06	M-FS-21618	B72-10545 02	MSC-14084	B72-10622 09	M-FS-21965
B72-10467 02	M-FS-21576	B72-10546 06	LEWIS-11270	B72-10623 09	NPO-11973
B72-10468 02	M-FS-22024	B72-10547 05	LANGLEY-11054	B72-10624 09	M-FS-21991
B72-10469 04	M-FS-22119	B72-10548 02	LANGLEY-10511	B72-10625 09	MSC-17619
B72-10470 07	M-FS-21735	B72-10549 03	ARC-10656	B72-10626 06	LEWIS-11234
B72-10471 02	GSFC-10525	B72-10550 04	ARC-10680	B72-10627 04	LEWIS-11823
B72-10472 03	GSFC-11200	B72-10551 04	NPO-12028	B72-10628 04	LEWIS-11864
B72-10473 04	LANGLEY-10423	B72-10552 06	NPO-12029	B72-10629 03	LEWIS-11632
B72-10474 01	M-FS-22090	B72-10553 04	NPO-10714	B72-10630 05	LEWIS-11755
B72-10475 07	LRL-10025	B72-10554 03	NPO-10619	B72-10631 06	LEWIS-11851
B72-10476 06	M-FS-21930	B72-10555 01	NPO-11499	B72-10632 05	LEWIS-11751
B72-10477 01	LEWIS-11465	B72-10556 03	NPO-11852	B72-10633 04	LEWIS-11835
B72-10478 03	LEWIS-11513	B72-10557 05	ARC-10024	B72-10634 09	LEWIS-11693
B72-10479 01	LEWIS-11619	B72-10558 06	ARC-10153	B72-10635 08	LEWIS-11824
B72-10480 01	LEWIS-11549	B72-10559 05	ARC-10550	B72-10636 06	KSC-10618
B72-10481 02	HQ-10695	B72-10560 04	ARC-10563	B72-10637 05	LANGLEY-11074
B72-10482 05	HQ-10664	B72-10561 01	ARC-10593	B72-10638 08	M-FS-22003
B72-10483 09	LEWIS-11110	B72-10562 08	MSC-17713	B72-10639 02	M-FS-21720
B72-10484 07	LEWIS-11572				

TECH BRIEF/ORIGINATING CENTER NUMBER INDEX

872-10640 07	M-FS-20205	872-10718 09	LEWIS-11714
872-10641 05	LANGLEY-10102		LEWIS-11740
872-10642 05	MSC-13648	872-10719 01	GSFC-11061
872-10643 01	M-FS-21915	872-10720 03	M-FS-22062
872-10644 08	M-FS-21558	872-10721 09	MSC-11653
872-10645 07	M-FS-21822	872-10722 06	MSC-17930
872-10646 01	M-FS-22118	872-10723 06	NPO-11417
872-10647 02	GSFC-10901	872-10724 02	NPO-11494
872-10648 09	M-FS-20744	872-10725 04	LANGLEY-11027
872-10649 08	GSFC-10913	872-10726 09	LEWIS-11708
872-10650 09	GSFC-11612	872-10727 03	LEWIS-11617
872-10651 06	HQ-10302	872-10728 04	LEWIS-11665
872-10652 05	HQ-10628	872-10729 01	MSC-12395
872-10653 05	HQ-10662	872-10730 05	M-FS-14133
872-10654 03	HQ-10688	872-10731 01	LANGLEY-11012
872-10655 03	HQ-10701	872-10732 05	MSC-14234
872-10656 09	HQ-10709	872-10733 06	MSC-14245
872-10657 05	HQ-10766	872-10734 08	MSC-1419A
872-10658 05	HQ-10776	872-10735 01	MSC-17827
872-10659 05	HQ-10777	872-10736 09	MSC-13805
872-10660 05	HQ-10778	872-10737 01	LEWIS-11698
872-10661 05	HQ-10779	872-10738 06	LEWIS-11649
872-10662 03	HQ-10798	872-10739 09	LEWIS-11722
872-10663 06	LANGLEY-11071	872-10740 04	M-FS-22280
872-10664 02	M-FS-14478	872-10741 01	LANGLEY-11210
872-10665 03	M-FS-21212	872-10742 04	LEWIS-11652
872-10666 04	M-FS-21674	872-10743 06	NPO-11603
872-10667 09	M-FS-21751	872-10744 08	LANGLEY-10801
872-10668 02	M-FS-22117	872-10745 08	LEWIS-11268
872-10669 06	M-FS-21846	872-10746 04	HQ-10714
872-10670 03	HQ-10663	872-10747 09	NPO-11960
872-10671 09	HQ-10743	872-10748 06	HQ-10761
872-10672 07	LEWIS-11602	872-10749 06	LANGLEY-11068
872-10673 01	LEWIS-11804	872-10750 09	MSC-14161
872-10674 09	GSFC-11597	872-10751 02	GSFC-11087
872-10675 09	GSFC-11523	872-10752 02	LEWIS-11898
872-10676 09	M-FS-21880	872-10753 09	LEWIS-11863
872-10677 06	MSC-17848	872-10754 08	LEWIS-11259
872-10678 07	M-FS-16863	872-10755 01	HQ-10745
872-10679 06	M-FS-24221	872-10756 05	MSC-13999
872-10680 02	M-FS-22043		
872-10681 07	LEWIS-11813		
872-10682 02	M-FS-21671		
872-10683 08	LANGLEY-11072		
872-10684 04	LEWIS-11750		
872-10685 07	KSC-10768		
872-10686 06	LEWIS-11814		
872-10687 07	M-FS-21731		
872-10688 07	M-FS-16319		
872-10689 06	M-FS-21911		
872-10690 05	MSC-14151		
872-10691 01	ARC-10364		
872-10692 06	ARC-10519		
872-10693 06	ARC-10621		
872-10694 02	NPO-11708		
872-10695 05	ARC-10597		
872-10696 01	M-FS-22264		
872-10697 01	M-FS-22044		
872-10698 05	M-FS-21926		
872-10699 03	ARC-10723		
872-10700 03	NPO-11387		
872-10701 03	NPO-11432		
872-10702 03	NPO-11689		
872-10703 03	NPO-10117		
872-10704 06	NPO-11658		
872-10705 01	NPO-11592		
872-10706 03	NPO-11479		
872-10707 03	NPO-11725		
872-10708 05	NPO-11934		
872-10709 04	ARC-10592		
872-10710 04	ARC-10696		
872-10711 04	NPO-11139		
872-10712 06	NPO-10671		
872-10713 06	NPO-11330		
872-10714 06	NPO-11366		
872-10715 06	LEWIS-11826		
872-10716 06	LEWIS-11775		
872-10717 04	LEWIS-11840		

Page Intentionally Left Blank

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300

SPECIAL FOURTH-CLASS RATE
BOOK

POSTAGE AND FEES PAID
NATIONAL AERONAUTICS AND
SPACE ADMINISTRATION
451



POSTMASTER: If Undeliverable (Section 158
Postal Manual) Do Not Return

"The aeronautical and space activities of the United States shall be conducted so as to contribute . . . to the expansion of human knowledge of phenomena in the atmosphere and space. The Administration shall provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof."

—NATIONAL AERONAUTICS AND SPACE ACT OF 1958

NASA TECHNOLOGY UTILIZATION PUBLICATIONS

These describe science or technology derived from NASA's activities that may be of particular interest in commercial and other non-aerospace applications. Publications include:

TECH BRIEFS: Single-page descriptions of individual innovations, devices, methods, or concepts.

TECHNOLOGY SURVEYS: Selected surveys of NASA contributions to entire areas of technology.

OTHER TU PUBLICATIONS: These include handbooks, reports, notes, conference proceedings, special studies, and selected bibliographies.

Details on the availability of these publications may be obtained from:

National Aeronautics and
Space Administration
Code KT
Washington, D.C. 20546

Technology Utilization publications are part of NASA's formal series of scientific and technical publications. Others include Technical Reports, Technical Notes, Technical Memorandums, Contractor Reports, Technical Translations, and Special Publications.

*Details on their availability
may be obtained from:*

National Aeronautics and
Space Administration
Code KS
Washington, D.C. 20546

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Washington, D.C. 20546